08-4/2/1986/v.4

Veterans Administration

Standard Details
Volume 4
Electrical Engineering

February 1986
Handbook H-08-4

Office of Construction
Washington DC 20420

Veterans Administration
Washington, D.C. 20420

H-08-4
February 1, 1986

INTRODUCTION

1. VA Handbook H-08-4, "Standard Details", is a complete set of standard details drawings. Volumes I-IV to be used for reference purposes on Veterans Administration project.

2. Standard detail drawings are furnished to DM&S field stations for their guidance in the planning and accomplishment of construction projects, minor improvements, and maintenance and repair projects. Specific instructions for field station usage will be prescribed by the Chief Medical Director.

3. All drawings are identified by a title and number; the numbers also serve as page numbers. Drawings are grouped in four sections as follows'

Architecture, Vol. I, 1-99
Civil Engineering, Vol. II, 20-299
Michanical Engineering, Vol. III, 300-799
Electrical Engineering, Vol. IV

4. Throughout the handbook there are gaps in the sequence of detail numbers. Generally these missing numbers are reserved for future revision or expansion of the series.

5. For ease of reference the index is arranged by subject in alphabetical order. As appropriate, the index will be reissued to include new and revised standard details. New and revised drawings will be issued with a transmittal sheet.

6. Field Stations may request specific additional pages directly from the Chief, Administrative Services Divison (08C2), Office of Construction.

ALBERT A PETER, JR., Director
Office of Construction (08)

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ABBREV.	DESCRIPTION
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BC	BARE COPPER
BRIP	BOILER PLANT INSTRUMENTATION PANEL
C	CONDUIT
CB,C/B	CIRCUIT BREAKER
CKT BKR	
CKT	CIRCUIT
CCTV	CLOSED CIRCUIT T.V.
CLG	CEILING
DB	DIRECT BURIAL
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
EX	EXISTING
EJ	EXPANSION JOINT
EXP,XP	EXPLOSION PROOF
EMERG	EMERGENCY
ELEC	ELECTRIC
EWC	ELECTRIC WATER COOLER
ESM	ELECTRIC STRIP MOLD
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FI	FILM ILLUMINATOR
FCU	FAN COIL UNIT
FIXT	FIXTURE
FLOUR	FLOURESCENT
FSS	FUSED SAFETY SWITCH
FSCP	FLAME SAFEGUARD CONTROL PANEL
G,GND	GROUND
GEN	GENERATOR
GTB	GROUND TERMINAL BOX
GFI	GROUND FAULT INTERRUPTER
HOA	HAND OFF AUTOMATIC
HH	HANDHOLE
HP	HORSE POWER
HV	HIGH VOLTAGE
INCAND	INCANDESCENT
JB	JUNCTION BOX
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LTS	LIGHTS
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MH	MANHOLE
MTD	MOUNTED
MTG HGT	MOUNTING HEIGHT
NFSS	NON-FUSED SAFETY SWITCH
P	POLE
PB	PULL BOX
PBPU	PREFABRICATED BEDSIDE PATIENT POWER UNIT
PNL	PANEL
POD	POWER OPERATED DAMPER
PTRV	POWER TYPE ROOF VENTILATOR
PWR	POWER
RECEPT	RECEPTACLE
RGIP	REMOTE GROUND INDICATOR PANEL
SIG	SIGNAL
SS	SAFETY SWITCH
STA	STATION
TEL	TELEPHONE
TV	TELEVISION
UH	UNIT HEATER
V	VOLTAGE
VP	VAPOR PROOF
W	WIRE
W/	WITH
WP	WEATHER PROOF
WT	WATER TIGHT
XFMR	TRANSFORMER

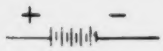
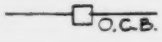
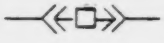
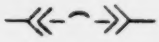
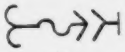
E
S-1

ABBREVIATIONS

—DB—	DIRECT BURIAL CABLE - SIZE AS INDICATED.
— S —	SIGNAL DUCT
— P —	POWER DUCT
40'-CL 2	OVERHEAD LINE & POLES (HEIGHT & CLASS OF POLE AS DESIGNATED)
—o— —o—	EXISTING OVERHEAD LINE & POLES
	STREET LIGHT WITH SINGLE LUMINAIRE
	STREET LIGHT WITH TWIN LUMINAIRE
	EXTERIOR FLOOD LIGHT
P	MANHOLE (P= POWER, S= SIGNAL)
H	HANDHOLE
P / S	DUAL POWER & SIGNAL MANHOLE
T500	PADMOUNT TRANSFORMER - NUMERAL INDICATES KVA SIZE
SWGR. S	SWITCHGEAR - SUBSCRIPT DENOTES SUBSTATION
HVS	HIGH-VOLTAGE SWITCH ON CONCRETE PAD
LVS	LOW-VOLTAGE SWITCH ON CONCRETE PAD
SWBD	SWITCHBOARD

SYMBOLS - SITE WORK

E
S-2

CLG.	WALL	DESCRIPTION
		BATTERY
		HIGH VOLTAGE OIL CIRCUIT BREAKER
		HIGH VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
		SWITCH AND FUSE UNIT
		MOLDED CASE CIRCUIT BREAKER
		LOW VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
		FUSED DRAWOUT POTENTIAL TRANSFORMER
		AMMETER
		VOLTMETER
		WATTMETER
		WATT-HOUR METER
		INSTANTANEOUS OVERCURRENT OR RATE-OF-RISE RELAY
		AC-TIME OVERCURRENT RELAY
		AC-DIRECTIONAL OVERCURRENT RELAY
		LOCKING OUT RELAY
		LIGHTNING ARRESTOR
		GROUND CONNECTION
		POTHEAD
		STRESS CONE
		PUSH-BUTTON STATION
		CURRENT TRANSFORMER

SINGLE LINE

CLG.	WALL	DESCRIPTION
	S_E	EXISTING SWITCH
O_E	$-O_E$	OUTLET AND INCANDESCENT FIXTURE IN PLACE
O_{ER}	$-O_{ER}$	OUTLET IN PLACE - RELOCATE EXISTING FIXTURE
(N)	-(N)	OUTLET IN PLACE - NEW INCANDESCENT FIXTURE
(B)	-(B)	OUTLET IN PLACE - REMOVE INCANDESCENT FIXTURE AND INSTALL BLANK COVER
(R)	-(R)	EXISTING INCANDESCENT FIXTURE RELOCATED W/NEW OUTLET
	$-(F)_B$	EXISTING FAN - REMOVE FAN AND BLANK OUTLET
E	E	EXISTING FLOURESCENT FIXTURE
R	R	EXISTING FLOURESCENT FIXTURE RELOCATED W/NEW OUTLET
—E—		EXISTING CONDUIT IN PLACE - REMOVE EXISTING WIRES AND INSTALL NEW WIRES AS INDICATED
—EX—		EXISTING CONDUIT AND WIRE TO REMAIN
—X—		EXISTING CONDUIT AND WIRE TO BE ABANDONED OR REMOVED
—■—E—		CONNECTION OF NEW CONDUIT TO EXISTING CONDUIT W/APPROVED TYPE COUPLINGS - INSTALL NEW WIRES
—✕—		CONDUIT SEAL FOR EXPLOSIONPROOF INSTALLATION
B		PLACED ADJACENT TO DEVICE SYMBOL DENOTES EQUIPMENT SHALL BE REMOVED AND OUTLET BLANKED
X		PLACED ADJACENT TO DEVICE SYMBOL DENOTES EQUIPMENT SHALL BE REMOVED

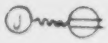
SYMBOLS - REWIRING AND DEMOLITION

E
S-4

CLG.	WALL	DESCRIPTION
		INCANDESCENT FIXTURE, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		EMERGENCY WHITE LIGHT (INCANDESCENT), WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		NIGHT LIGHT MTD 1'-6" AFF UNLESS OTHERWISE NOTED.
		FLUORESCENT FIXTURE, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		EMERGENCY WHITE LIGHT (FLUORESCENT), WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		EXIT LIGHT, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		EXIT LIGHT W/DIRECTIONAL ARROWS, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
		6 VOLT EMERGENCY LIGHT WITH 2 LAMPHEADS MTD 7'-6" AFF.
		REMOTE LAMPHEAD FOR 6V BATTERY SYSTEM MOUNT 7'-6" AFF.
		KEYLESS, PORCELAIN LAMP HOLDER, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
	NOTE:	SUBSCRIPT IN CAPITOL LETTERS INDICATES TYPE OF FIXTURE, SEE FIXTURE SCHEDULE.
		ALL STAIRWAY LIGHTING SHALL BE INSTALLED 7'-6" AFF.

E
S-5

SYMBOLS- LIGHTING SYSTEM, INTERIOR

CLG.	WALL	DESCRIPTION
		COMBINATION SWITCH & DUPLEX RECEPTACLE (4'-6" AFF UNLESS OTHERWISE NOTED)
		DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W/#12 CONDUCTORS IN FLEXIBLE CORD (CENTERLINE OF OUTLET: 6'-6" AFF-MINIMUM).
		ELECTRICAL STRIP MOLD (OUTLETS ON 2'-0" CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" AFF OR AS INDICATED.
		FLOOR OUTLET.
		SINGLE RECEPTACLE - 20A, MTD. 18" AFF UNLESS OTHERWISE NOTED.
	GFI	DUPLEX RECEPTACLE (HOSPITAL GRADE) - 20A, MTD. 18" AFF. SUBSCRIPT "GFI" INDICATES GROUND FAULT TYPE; "N" INDICATES NOT HOSPITAL GRADE; "ST" INDICATES (15A) SAFETY TYPE; AND "I" INDICATES ISOLATED GROUND (IF USED).
		DUPLEX RECEPTACLE SWITCHED 18" AFF UNLESS OTHERWISE NOTED.
		3-GANG COMPARTMENT BOX IN FLOOR FOR TELEPHONE, SIGNAL & RECEPTACLE.
		DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT - 20A, MTD 18" AFF WITH 1/4" "EMERGENCY" ENGRAVED LETTERS FILLED WITH RED ENAMEL. SUBSCRIPT "P" INDICATES RECEPTACLE WITH INTERNAL NIGHT LIGHT.
	A	120V, 20A, 1Ø, 2-POLE, 3W, NEMA 5-20R.
	B	208V, 20A, 1Ø, 2-pole, 3W, NEMA 6-20R.
	C	120V 30A, 1Ø, 2-POLE, 3W, NEMA 5-30R.
	D	208V 30A, 1Ø, 2-POLE, 3W, NEMA 6-30R.
	E	208V 60A, 1Ø, 3-POLE, 4W, NEMA 14-60R.
	F	208V 30A, 3Ø, 3-POLE, 4W, NEMA 15-30R.
	G	208V 50A, 3Ø, 3-POLE, 4W, NEMA 15-30R.
	H	208V 60A, 3Ø, 3-POLE, 4W, NEMA 15-60R.
	NOTE:	ALSO SEE VA CONSTRUCTION STANDARD CD-28.
	G	GROUND JACK

E
S-6

SYMBOLS- RECEPTACLES

CLG.	WALL	DESCRIPTION
		NOTE: MOUNTING HEIGHT FOR THE FOLLOWING SWITCHES SHALL BE 40" AFF; IN ELECTRIC CLOSET, MECHANICAL ROOMS, MOUNTING HEIGHT SHALL BE 4'-6" AFF.
	S	SINGLE POLE SWITCH WITH SUFFIX A.B.C. ETC. INDICATES CONTROL OF FIXTURE(S) WITH SAME DESIGNATION(S).
	S_2	DOUBLE POLE SWITCH.
	S_3	THREE-WAY SWITCH.
	S_4	FOUR-WAY SWITCH.
	S_D	DIMMER SWITCH - WITH SILICON CONTROLLED RECTIFIER.
	S_T	TIME SWITCH.
	S_R	POCKER TYPE SWITCH.
		NOTE: MOUNTING HEIGHT FOR THE FOLLOWING SWITCHES SHALL BE 4'-6" AFF UNLESS OTHERWISE NOTED.
	S_{EXP}	EXPLOSION PROOF SWITCH.
	S_K	KEY OPERATED SWITCH.
	S_L	LOCK TYPE SWITCH.
	S_M	MANUAL MOTOR STARTING SWITCH.
	S_{MC}	MOMENTARY CONTACT SWITCH.
	S_{MP}	MOTOR SNAP SWITCH (THERMAL TYPE) WITH PILOT LIGHT.
	S_{PB}	PUSH BUTTON STATION.
	S_P	SWITCH WITH PILOT LIGHT.
	S_{RC}	REMOTE CONTROL SWITCH.
	S_{WP}	WEATHERPROOF SWITCH.

NOTE: ALSO SEE VA CONSTRUCTION STANDARD CD-28.

CLG.	WALL	DESCRIPTION
J	J	JUNCTION BOX, MTD 1'-6" AFF UNLESS NOTED OTHERWISE
3		MOTOR .NUMBER DENOTES HORSEPOWER
G		GENERATOR
PB		PULL BOX
		LIGHTING OR LIGHTING/POWER PANELBOARD
		DISTRIBUTION OR POWER PANELBOARD
		CONTROLLER, MAGNETIC
		COMBINATION CONTROLLER AND DISCONNECT SWITCH
		FUSED OR UNFUSED DISCONNECT SWITCH.
		UNIT HEATER BLOWER MOTOR
		VENTILATOR OR FAN COIL UNIT OUTLET
		CONDUIT TERMINATED 6" A.F.F. IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED
		CONDUIT TERMINATED W/COUPLING (FLUSH W/FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTED
		UNDERFLOOR DUCT AND JUNCTION BOX (DOUBLE SYSTEM: 2 LINES, SINGLE SYSTEM 1 LINE)
		FLEXIBLE CONDUIT - 1/2". W/3 #12 WIRES
		BRANCH CIRCUIT EXPOSED

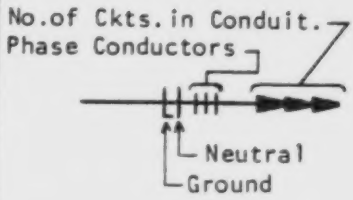
SYMBOLS - GENERAL

E
S-8

DESCRIPTION

BRANCH CIRCUIT CONCEALED IN FLOOR.

BRANCH CIRCUIT CONCEALED IN CEILING OR WALL.



HOME RUN TO PANEL-ARROWHEADS INDICATE CIRCUITS. WIRE INDICATED ARE GREEN GROUND, NEUTRAL AND THREE HOT LEGS (A DIFFERENT PHASE FOR EACH CIRCUIT). MAXIMUM THREE CIRCUITS PER CONDUIT.

RISER UP.

RISER DOWN.

CLG.	WALL	DESCRIPTION
	F 2-2-4	FIRE ALARM STATION (MANUAL) NUMERALS DENOTE CODE MOUNTED 48" AFF TO CENTERLINE OF STATION.
	F B	FIRE ALARM AUDIBLE VISUAL DEVICE MOUNTED 7'-6" AFF UNLESS NOTED SUFFIX DENOTES. G- GONG 6" DIA. UNLESS NOTED SA- SUMMONING ALARM H- HORN CH- CHIME D- FLASHING DOME LIGHT
F S		SMOKE DETECTOR,
F SD		SMOKE DETECTOR DUCT TYPE.
FS		WATER FLOW SWITCH.
F DD		SMOKE DAMPER- SEE MECHANICAL DWG's FOR EXACT LOCATION.
	OSY	VALVE SUPERVISORY SWITCH
	DH	ELECTRO-MAGNETIC TYPE DOOR HOLDER OUTLET.
	FACP	FIRE ALARM CONTROL PANEL.
	AP R	ANNUNCIATOR PANEL. SUBSCRIPT 'R' DENOTES REMOTE ANNUNCIATOR.
	FATC	FIRE ALARM TERMINAL CABINET.
	PIV	POST INDICATOR VALVE.
	FAT 2-4-6	FIRE ALARM TRANSMITTER (BASE LOOP) NUMERALS DENOTE CODE.
	FTT 2-4-6	FIRE ALARM TROUBLE TRANSMITTER (BASE LOOP) NUMERALS DENOTE CODE.
		CITY FIRE ALARM MASTER STATION MTD 5'-6" AFF UNLESS NOTED.
	FAR	FIRE ALARM RECORDER.
	BAT	FIRE ALARM BATTERIES.
	CRG	BATTERY CHARGER.
	FACC	FIRE ALARM CENTRAL CONSOLE.
	— F —	FIRE ALARM CONDUIT RUN-MINIMUM 3/4".
F H		HEAT DETECTOR, FIXED TEMPERATURE, 190 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
F R		COMBINATION HEAT DETECTOR WITH RATE OF RISE ELEMENT (15 DEG. F./MIN.)

SYMBOLS-FIRE ALARM

E
S-10

WALL	DESCRIPTION
▶	TELEPHONE OUTLET (PAY STATION), MTD. 4'-0" A.F.F.
▷	TELEPHONE OUTLET, MTD: 18" A.F.F. UNLESS OTHERWISE NOTED
J ▷	TELEPHONE OUTLET (JACK TYPE), MTD. 18" A.F.F. UNLESS OTHERWISE NOTED
W ▷	TELEPHONE OUTLET (WALL TYPE) MTD 54" A.F.F. UNLESS OTHERWISE NOTED.
▬	TELEPHONE TERMINAL CABINET.
—T—	EMPTY 3/4" TELEPHONE CONDUIT UNLESS OTHERWISE NOTED
▬▬	TELEPHONE BACKBOARD (WALL MOUNTED)

NOTE: FOR WHEELCHAIR PATIENT USE, MOUNT TELEPHONE OUTLET 36" A.F.F. TO BOTTOM OF OUTLET BOX.

DESK PHONES - MOUNT OUTLET 1'-6" ABOVE FINISHED FLOOR

PAY PHONES - MOUNT OUTLET 4'-0" ABOVE FINISHED FLOOR

HEIGHT OF TELECART OUTLETS SHALL BE AS INDICATED ON BEDWALLS OR PBPU DETAILS.

NOTE: ALSO SEE VA "BARRIER FREE DESIGN HANBOOK"

SYMBOLS - TELEPHONE SYSTEM

E
S-11

CLG.	WALL	
		4 11/16" MASTER ANTENNA OUTLET BOX W/BLANK COVER FOR TV INSTALLATION, MTD. 18" A.F.F. UNLESS OTHERWISE NOTED
		OUTLET FOR TV CAMERA (CCTV SYSTEM), MTD 18" A.F.F.
		OUTLET FOR TV MONITOR (CCTV SYSTEM)
		TV CONDUIT RUN, MINIMUM 3/4" CONDUIT
		CCTV CONDUIT RUN, MINIMUM 1" CONDUIT

SYMBOLS - TELEVISION SYSTEM

E
S-12

CLG.	WALL	DESCRIPTION
	R	RADIO CHANNEL SELECTOR FACILITIES, MTD. 4'-6" A.F.F. UNLESS OTHERWISE NOTED
	R_V	SPEAKER PROGRAM SELECTOR SWITCH & VOLUME CONTROL, MTD. 4'-6" A.F.F. UNLESS OTHERWISE NOTED
	S	SPEAKER OUTLET, MTD 7'-6" A.F.F. UNLESS OTHERWISE NOTED
(S)		SPEAKER.
——R——		RADIO CONDUIT RUN, MINIMUM 3/4" CONDUIT
$(S)_M$		CEILING MICROPHONE SPEAKER.

NOTE: ALSO SEE VA CONSTRUCTION STANDARD CD-28.

E
S-13

SYMBOLS - RADIO SYSTEM

CLG.	WALL	DESCRIPTION
	[NCS]	NURSE'S CALL MASTER STATION. MTD ON NURSE'S COUNTER TOP. UNLESS OTHERWISE NOTED.
	[NCT]	NURSE CALL TERMINAL CABINET.
	[N]$_E$	NURSE'S CALL STATION- MTD 6'-0" AFF FOR SHOWER LOCATION. MTD 4'-6" AFF FOR TUB LOCATION. MTD 3'-0" AFF FOR TOILET LOCATION.
	[N]$_S$	NURSE'S CALL AUDIO VISUAL WALL STATION (STAFF) MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	[N]$_D$	NURSE'S CALL DUTY STATION. MTD 5'-0" AFF UNLESS NOTED OTHERWISE.
	[N]$_2$	NURSE'S CALL STATION, SUBSCRIPT "2" INDICATES DUPLICATE FACILITIES FOR TWO BEDS (SEPERATE INDICATORS AT MASTER STATION). MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	[N]$_U$	UTILITY CALL STATION, MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	[N]$_P$	PSYCHIATRIC CORRIDOR STATION WITH KEY SWITCH.
	(N)$_2$	NURSE'S CALL DOME LIGHT (SUFFIX INDICATES NO. OF LAMPS) MTD6" ABOVE DOOR.
(N)$_I$		NURSE'S CALL AUXILIARY INTERSECTIONAL DOME LIGHT.
(N)$_D$		NURSE'S CALL CORRIDOR DOME LIGHT.
	——N——	NURSE'S CALL CONDUIT RUN, MINIMUM 3/4" CONDUIT.
	T	SECURITY TYPE PANIC BUTTON. MTD 4'-6" AFF.

NOTE: ALSO SEE VA CONSTRUCTION STANDARD CD-28.

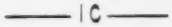
E
S-14

SYMBOLS-NURSE CALL SYSTEM

WALL	DESCRIPTION
T	SIGNAL TRANSFORMER
	BUZZER MTD 1'-6" A.F.F. UNLESS OTHERWISE NOTED
H	HORN MTD 7'-6" A.F.F. UNLESS OTHERWISE NOTED

SYMBOLS - MISCELLANEOUS ALARM SYSTEMS

E
S-15

WALL	DESCRIPTION
	REMOTE DICTATING OUTLET MTD 1'-6" A.F.F. UNLESS OTHERWISE NOTED.
	3-POLE TWIST-LOCK RECEPTACLE FOR MICROPHONE, MTD. 4'-6" A.F.F.
	INTERCOM STATION (REFER TO SPECS. FOR FUNCTIONAL OPERATION OF INSTRUMENT & TYPE REQUIRED)
	INTERCOM CONDUIT RUN. MINIMUM 3/4" CONDUIT.
	INTERCOM STAFF STATION.

NOTE: ALSO SEE VA CONSTRUCTION STANDARD CD-28.

CLG.	WALL	DESCRIPTION
	NIC	CODE ONE CONTROL AND ALARM STATION. MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	NIT	CODE ONE TERMINAL CABINET.
	NIA	CODE ONE ANNUNCIATOR PANEL.
	NI	CODE ONE BEDSIDE STATION.
	NI D	CODE ONE DUTY STATION, MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	EBT	RECOVERY ROOM EMERGENCY ALARM TERMINAL CABINET.
	E A	BEDSIDE EMERGENCY ALARM BUTTON.

E
S-17

SYMBOLS- CODE ONE SYSTEM AND RECOVERY EMERGENCY ALARM

G1 ALL FINAL LOCATIONS AND ARRANGEMENTS OF LIGHTING FIXTURES ~~S~~HALL BE OBTAINED FROM THE ARCHITECTURAL REFLECTED CEILING PLAN.

G2 FIXTURES SHALL BE SO WIRED THAT TWO OUTSIDE LAMPS ARE CONTROLLED BY ONE SWITCH, AND REMAINING LAMPS CONTROLLED BY SECOND SWITCH

G3 SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ALL INTERLOCK WIRING REQUIREMENTS BETWEEN MOTORS, MINIMUM CONTROL WIRING SHALL BE #14 AND MAY BE RUN IN SAME CONDUIT AS MOTOR FEEDERS.

G4 ALL ELECTRICAL FIXTURES/DEVICES SHALL BE PROVIDED WITH TAMPERPROOF SCREWS(PSYCHIATRIC AREAS).

GENERAL NOTES

E
S-18

D1 REMOVE ALL EXISTING ELECTRICAL EQUIPMENT IN THIS AREA UNLESS OTHERWISE NOTED TO REMAIN, INCLUDING LIGHTING FIXTURES, SWITCHES, RECEPTACLES, EXPOSED CONDUIT, SURFACE AND FLUSH DEVICE BOXES, DEVICE PLATES, ETC. REMOVE ALL WIRING FROM EXISTING CONDUITS, CUT BACK CAP AND ABANDON ALL CONCEALED CONDUITS AS REQUIRED.

D2 MAINTAIN AND RESTORE, IF INTERRUPTED, ALL CONDUITS AND FEEDERS PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.

D3 EXISTING CONDUIT FOUND TO BE REUSEABLE MAY BE USED. ALL OTHER MATERIAL SHALL BE REMOVED FROM THE JOB SITE UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

D4 EXISTING ELECTRICAL WORK TO REMAIN IN THIS AREA, RESTORE ALL CIRCUITS INTERRUPTED BY NEW WORK.

D5 REMOVE EXISTING TELEPHONE SERVICE, AND BRANCH CIRCUITS. COORDINATE DEMOLITION WITH TELEPHONE COMPANY.

D6 PARTIAL BRANCH CIRCUIT WIRING DENOTING EXISTING CONTROL OR SWITCHING ON THE DRAWING IS SHOWN FOR REFERENCE/CLARIFICATION ONLY, AND IS NOT TO BE CONSTRUED TO IMPLY COMPLETE CIRCUIT WIRING. THE LOCATION OF THE INTERCONNECTION OF CONTROL DEVICE, AND EQUIPMENT CONTROLLED IS DIAGRAMATIC ONLY.

NOTES - DEMOLITION SYSTEM

E
S-19

HOUSING: DIE-FORMED ALUMINUM PAN; ANODIZED
5½" H; SUPPORTING TWO PREWIRED MED
ENCLOSING LENS; FOR INSTALLATION O

LENS: PRISMATIC GLASS WITH CERAMIC COATI
UP-LIGHT; LOWER PORTION - CLEAR, F
DISTRIBUTION CONCENTRATED APPROXIM
LENS RETAINED IN PAN BY SPRING SAF

FINISH: ANODIZED FINISH.

LAMP HOLDER: TWO- MEDIUM BASE PORCELA

LAMPS: TWO 75 WATT A18 INCANDESCENT

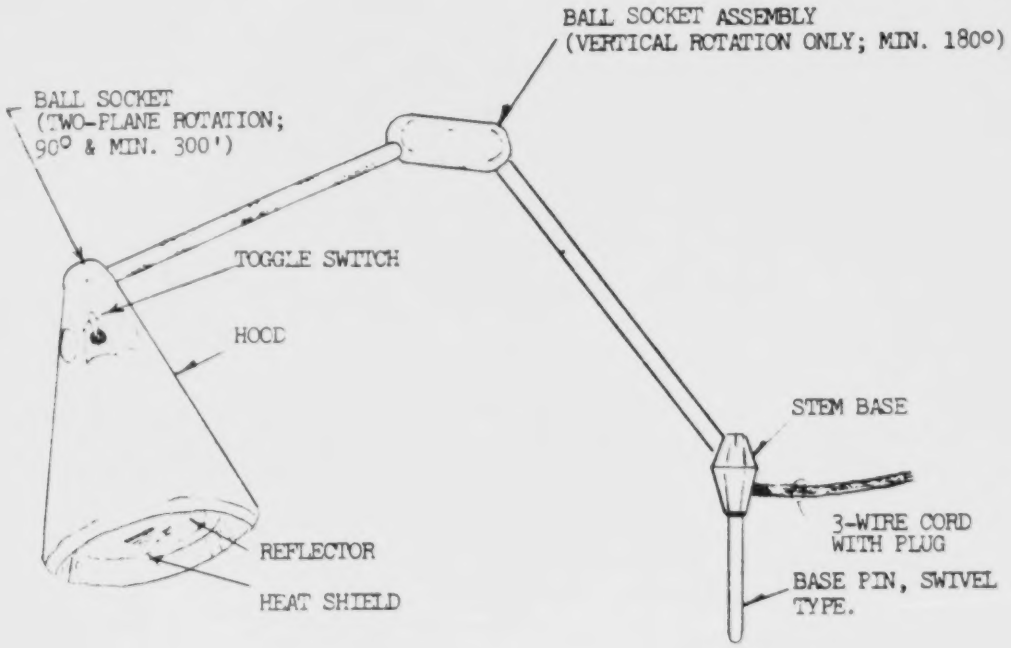
WALL-MOUNTED BATHROOM FIXTURE

FINISH; APPROXIMATELY 11½" W by
IUM BASE LAMPHOLDERS AND THE
N STANDARD 3" OR 4" OUTLET BOX.

NG ON UPPER PORTION FOR DIFFUSE
RODUCING FAN SHAPED LIGHT
ATELY 35 DEGREES FROM THE WALL;
ETY CLIP.

IN BODIED SCREW SHELL.

E
N-1



ARM SECTIONS: RIGID STEEL TUBING; MAX. EXTENSION - NOT LESS THAN 33".

BALL SOCKETS: STEEL CONSTRUCTION: SPRING LOADED BALL; POSITIVE ROTATION STOP.

HOOD: ALUMINUM CONSTRUCTION; VENTILATED; PROCELAIN BODIED LAMPHOLDER, HEAT SHIELD AND REFLECTOR.

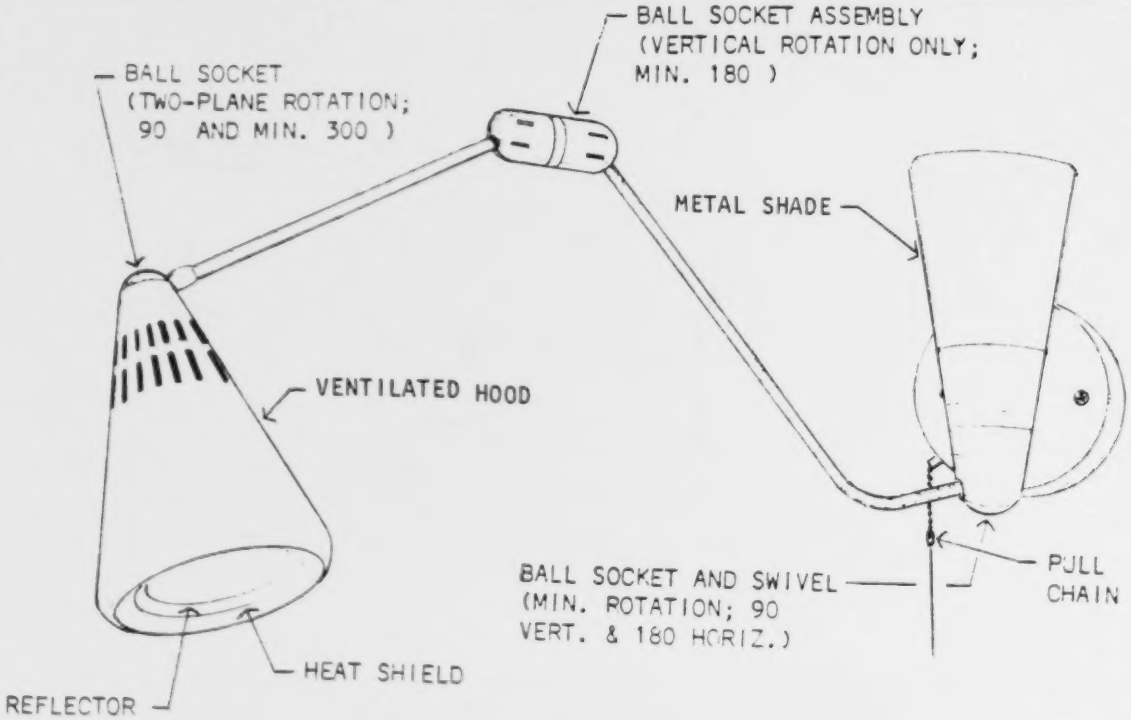
SWITCH: TOGGLE TYPE, HOOD MOUNTED.

LAMP: 75W. INCANDESCENT I.F. BULB.

FINISH: GENERAL; LIGHT GRAY BAKED ENAMEL OVER CORROSION RESISTANT PRIMER.
REFLECTOR; HIGH REFLECTANCE BAKED WHITE ENAMEL.

E
N-2

ADJUSTABLE ARM BED LIGHT.



CANOPY: SPUN OR CAST ALUMINUM.

BACK PLATE AND SWIVEL HOUSING: CAST ALUMINUM.

ARM SECTIONS: RIGID STEEL TUBING; MAXIMUM EXTENSION - NOT LESS THAN 33 INCHES.

BALL SOCKETS: STEEL CONSTRUCTION; SPRING LOADED BALL; POSITIVE ROTATION STOP. (CLAM SHELL TYPE SHALL NOT BE ACCEPTABLE)

HOOD / SHADE: ALUMINUM CONSTRUCTION; VENTILATED; PORCELAIN BODIED LAMPHOLDER, HEAT SHIELD (HOOD) AND REFLECTOR

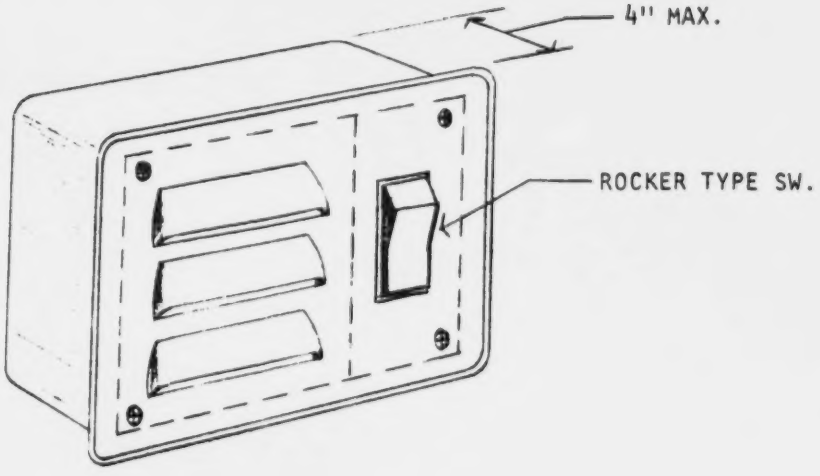
SWITCH: LEVER ACTION PULL CHAIN TYPE WITH INSULATING LINK.(UP, DOWN, BOTH, OFF)

LAMP: 2-75 WATT INCANDESCENT "A" LAMP.

FINISH: GENERAL; LIGHT GRAY BAKED ENAMEL OVER CORROSION RESISTANT PRIMER.
REFLECTOR; HIGH REFLECTANCE BAKED WHITE ENAMEL.

ADJUSTABLE ARM BED LIGHT

E
N-3



HOUSING: STEEL A MINIMUM OF 0.035" THICKNESS; INTERNAL WIREWAY (OR ATTACHED ACCESSORY BOX) WITH KNOCKOUTS FOR THROUGH WIRING; SUPPORTS FOR REFLECTOR, LAMPHOLDER AND FACE PLATE.

REFLECTOR: SEPARABLE, SPECULARLY FINISHED ALUMINUM; OR HOUSING ITSELF.

DOOR & TRIM: INTEGRAL LOUVERED FACE PLATE OR LOUVERED DOOR IN TRIM FRAME; CAST ALUMINUM, OR FORMED STEEL (MIN. 0.047" THICK); HINGED FOR RELAMPING; THUMBSCREW(S) OR SPRING LATCH; LIGHT TIGHT SEAL AT HOUSING OR WALL.

FINISH: HOUSING - BAKED ENAMEL EXTERIOR AND BAKED WHITE ENAMEL INTERIOR OVER CORRISION RESISTANT PRIMER; DOOR & TRIM - BAKED ALUMINUM ENAMEL (STEEL), OR SATIN ALUMINUM (ALUM.).

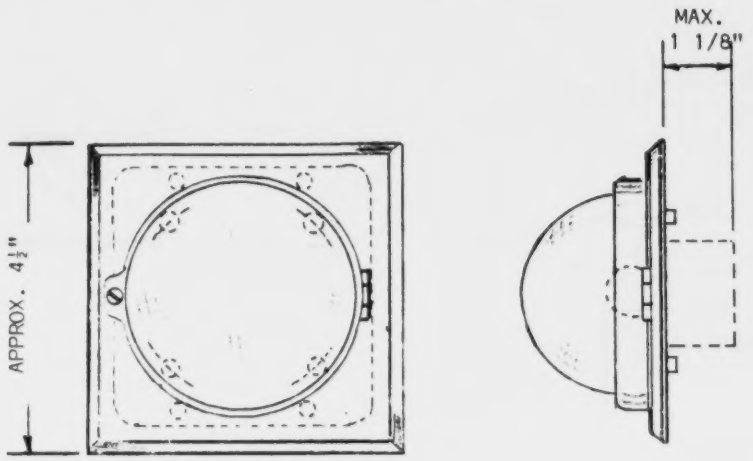
LAMPHOLDER: PORCELAIN BODIED, MEDIUM BASE.

LAMP: ONE 25-WATT INCANDESCENT.

SWITCH: 15A, 120V.AC.ROCKER TYPE.

NIGHT LIGHT

E
N-4



SEMI-RECESSED, TWO LAMP NARCOTIC WARNING LIGHT, SIMILAR TO COMMERCIALLY AVAILABLE NURSES CALL SYSTEM DOME LIGHTS.

FACE PLATE: STAINLESS STEEL.

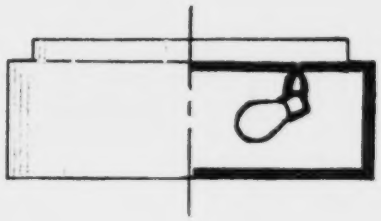
DOME: CONFIGURATION IN ACCORDANCE WITH THE MANUFACTURER'S LATEST STANDARD CATALOG ITEM. MATERIAL: GLASS OR ACRYLIC PLASTIC. COLOR: RUBY RED.

LAMPS: APPROXIMATELY 7.5 WATTS EACH, 120 VOLTS, CLEAR.

FIXTURE SHALL BE DESIGNED TO MOUNT ON 4" SQUARE OUTLET BOX.

NARCOTIC LIGHT

E
N-5



MAXIMUM WATTAGE
2 - 60
2 - 100
3 - 75
3 - 100

CEILING PAN: MINIMUM 20 GAUGE DIE-FORMED ALUMINUM; FIBERGLASS INSULATION BACKING; SUPPORTING, DRUM, ALUMINUM REFLECTOR, AND PREWIRED LAMPHOLDER BRACKETS.

REFLECTOR: ANODIZED ALUMINUM SHEET OR FOIL ON HEAT RESISTANT BACKING.

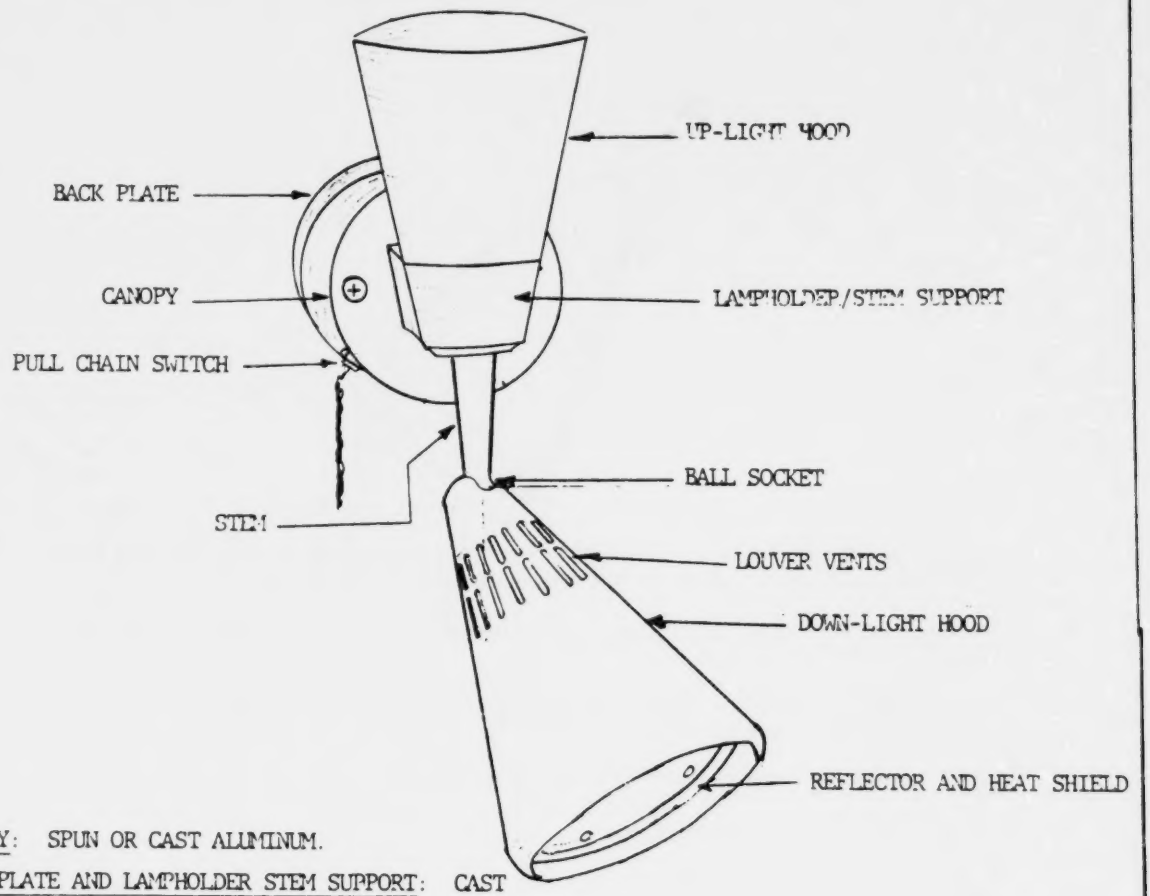
DRUM: WHITE OPAL GLASS DIFFUSER; UNIFORM BRIGHTNESS, AND SHALL HIDE LAMP IMAGE; RETAINED BY STEEL CLIP RING AND TORSION SPRINGS, MINIMUM 70% FIXTURE EFFICIENCY ; MAXIMUM SIZE, 17"D.

FINISH: EXPOSED BODY, SATIN ALUMINUM.

LAMPS: INCANDESCENT, AS REQUIRED.

DRUM TYPE INCANDESCENT

E
N-6



CANOPY: SPUN OR CAST ALUMINUM.

BACK PLATE AND LAMPHOLDER STEM SUPPORT: CAST ALUMINUM.

BALL SOCKET: STEEL CONSTRUCTION; SPRING LOADED BALL; POSITIVE ROTATION STOP; 90 DEGREE VERTICAL AND 360 DEGREE HORIZONTAL SWING ADJUSTMENT.

HOODS: UP-LIGHT UNIT LIGHT GREY FIBERGLASS; DOWN-LIGHT, LOUVERED ALUMINUM WITH INTERIOR HEAT SHIELD AND REFLECTOR.

SWITCH: LEVER ACTION PULL CHAIN TYPE, WITH INSULATING LINK, FOR DOWN-LIGHT CONTROL. UP LIGHT CONTROLLED BY WALL SWITCH.

LAMPS: INCANDESCENT; UP-LIGHT, 150 WATT IF; DOWN-LIGHT, 75 WATT IF.

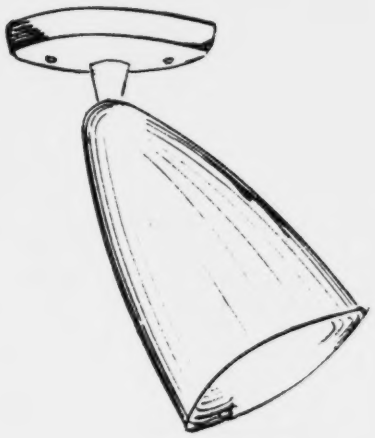
FINISH: GENERAL; LIGHT GREY BAKED ENAMEL OVER CORROSION RESISTANT PRIMER. REFLECTOR; HIGH REFLECTANCE BAKED WHITE ENAMEL.

TYPE B

SAME CONSTRUCTION AS ABOVE EXCEPT SHALL HAVE FOUR POSITION PULL-CHAIN SWITCH PROVIDING UP-LIGHT, DOWN-LIGHT, BOTH AND "OFF".

E
N-7

CANOPY MOUNTED ADJUSTABLE FIXTURE



SHADE: ALUMINUM; HOUSING A PORCELAIN BODIED LAMPHOLDER AND ADJUSTABLE BALL SOCKET; VENTILATED BY BAFFLED OPENINGS ADJACENT TO LAMP SOCKET.

CANOPY: SPUN OR CAST ALUMINUM; RIGID SUPPORT FOR CAST ALUMINUM SWIVEL POST; FOR OUTLET BOX MOUNTING.

BALL SOCKET: STEEL CONSTRUCTION; SPRING LOADED BALL; TWO-PLANE ROTATION, 90 DEGREES AND MINIMUM 350 DEGREES.

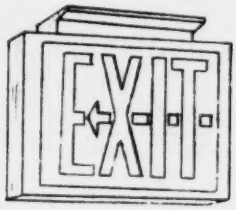
LAMP: INCANDESCENT; 150 WATT PAR-38 OR 75 WATT R-30.

FINISH: BRUSHED OR SATIN ALUMINUM.

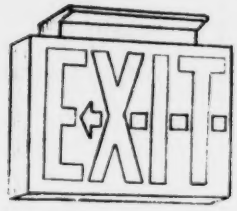
TYPE 'A' SAME AS ABOVE EXCEPT SHALL HAVE TWO SHADE UNITS MOUNTED ON ONE CANOPY.

ADJUSTABLE BULLET FIXTURE

E
N-8



TYPE 'A'



TYPE 'B'

HOUSING AND CANOPY: CAST OR EXTRUDED ALUMINUM.

DOOR FRAME: HINGED WITH LATCH; CAST OR EXTRUDED ALUMINUM

FINISH: SATIN OR BRUSHED ALUMINUM.

INSCRIPTION PANEL(S): LUMINOUS; RED; COLOR STABLE PLASTIC OR FIBERGLASS WITH 6-INCH WHITE LETTERS.

DOWNLIGHT: APERTURE IN HOUSING BOTTOM BACKED WITH CLEAR ACRYLIC DIFFUSING PANEL.

LAMPS: 2 - 15 WATT, T-6, 145 VOLT INCANDESCENT WITH MINIMUM OF 20,000 HOURS LIFE.

TYPE 'B' SAME CONSTRUCTION AS TYPE 'A' EXCEPT WITH CAST OR MIN. 0.090-INCH THICK STAMPED ALUMINUM STENCIL FACE BACKED WITH RED COLOR STABLE PLASTIC OR FIBERGLASS

NOTE: THE LETTERS "DF" ADDED TO ABOVE FIXTURE NUMBERS DENOTE DOUBLE FACED FIXTURES. FURNISH FIXTURES WITH DIRECTIONAL ARROWS WHERE SHOWN ON DRAWINGS AND WIRED FOR 120-VOLT OR 277-VOLT OPERATION AS INDICATED. ARROWS SHALL HAVE DISTINCT HEADS AND SHAFTS THAT EXTEND NO LESS THAN 5 INCHES.

TOP MOUNTED EXIT LIGHT

E
N-9

TYPE 'A'

TYPE 'B'

HOUSING AND CANOPY: CAST OR EXTRUDED ALUMINUM.

DOOR FRAME: HINGED WITH LATCH; CAST OR EXTRUDED ALUMINUM.

FINISH: SATIN OR BRUSHED ALUMINUM.

INSCRIPTION PANEL(S): LUMINOUS; RED; COLOR STABLE PLASTIC OR FIBERGLASS WITH 6-INCH WHITE LETTERS.

DOWNLIGHT: APERTURE IN HOUSING BOTTOM BACKED WITH CLEAR ACRYLIC DIFFUSING PANEL.

LAMPS: 2 - 15 WATT, T-6, 145 VOLT INCANDESCENT WITH MINIMUM OF 20,000 HOURS LIFE.

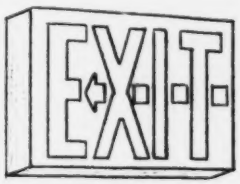
TYPE 'B' SAME CONSTRUCTION AS TYPE 'A' EXCEPT WITH CAST OR MIN. 0.090-INCH THICK STAMPED ALUMINUM STENCIL FACE BACKED WITH RED COLOR STABLE PLASTIC OR FIBERGLASS.

NOTE: THE LETTERS "DF" ADDED TO ABOVE FIXTURE NUMBERS DENOTE DOUBLE FACED FIXTURES. FURNISH FIXTURES WITH DIRECTIONAL ARROWS WHERE SHOWN ON DRAWINGS AND WIRED FOR 120-VOLT OR 277-VOLT OPERATION AS INDICATED. ARROWS SHALL HAVE DISTINCT HEADS AND SHAFTS THAT EXTEND NO LESS THAN 5 INCHES.

END MOUNTED EXIT LIGHT

E
N-10

TYPE 'A'



TYPE 'B'

HOUSING: STEEL MINIMUM .035-INCH THICK OR EQUIVALENT STRENGTH ALUMINUM: STEEL FINISHED IN BAKED ENAMEL OVER CORROSION RESISTANT PRIMER.

DOOR AND TRIM FRAME: HINGED AND LATCHED: CAST OR EXTRUDED ALUMINUM: SATIN OR BRUSHED ALUMINUM FINISH.

INSCRIPTION PANEL: LUMINOUS; RED; COLOR STABLE PLASTIC OR FIBERGLASS WITH 6-INCH WHITE LETTERS.

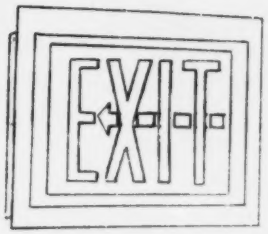
LAMPS: 2 - 15 WATT, T-6 145 VOLT INCANDESCENT WITH MINIMUM OF 20,000 HOURS LIFE.

TYPE 'B' CONSTRUCTION AS ABOVE EXCEPT WITH CAST OR MIN. 0.090-INCH THICK STAMPED ALUMINUM STENCIL FACE BACKED WITH RED COLOR STABLE PLASTIC OR FIBERGLASS.

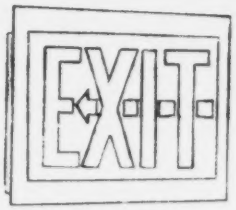
NOTE: FURNISH ABOVE FIXTURES WITH DIRECTIONAL ARROWS WHERE SHOWN ON DRAWINGS AND WIRED FOR 120-VOLT OR 277-VOLT OPERATION AS INDICATED. ARROWS SHALL HAVE DISTINCT HEADS AND SHAFTS THAT EXTEND NO LESS THAN 5 INCHES.

SURFACE MOUNTED EXIT LIGHT

E
N-11



TYPE 'A'



TYPE 'B'

HOUSING: STEEL MINIMUM .035-INCH THICK OR EQUIVALENT STRENGTH ALUMINUM; STEEL FINISHED IN BAKED ENAMEL OVER CORROSION RESISTANT PRIMER.

DOOR AND TRIM FRAME: HINGED AND LATCHED: CAST OR EXTRUDED ALUMINUM: SATIN OR BRUSHED ALUMINUM FINISH.

INSCRIPTION PANEL: LUMINOUS; RED; COLOR STABLE PLASTIC OR FIBERGLASS WITH 6-INCH WHITE LETTERS.

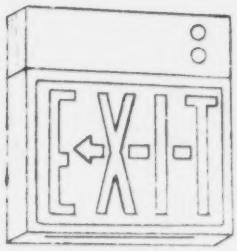
LAMPS: 2 - 15 WATT, T-6 145 VOLT INCANDESCENT WITH MINIMUM OF 20,000 HOURS LIFE.

TYPE 'B' CONSTRUCTION AS ABOVE EXCEPT WITH CAST OR MIN. 0.090-INCH THICK STAMPED ALUMINUM STENCIL FACE BACKED WITH RED COLOR STABLE PLASTIC OR FIBERGLASS.

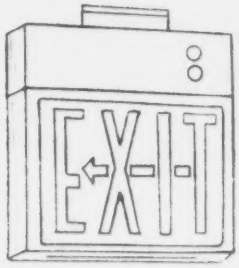
NOTE: FURNISH ABOVE FIXTURES WITH DIRECTIONAL ARROWS WHERE SHOWN ON DRAWINGS AND WIRED FOR 120-VOLT OR 277-VOLT OPERATION AS INDICATED. ARROWS SHALL HAVE DISTINCT HEADS AND SHAFTS THAT EXTEND NO LESS THAN 5 INCHES.

RECESSED EXIT LIGHT

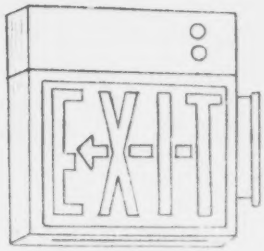
E
N-12



BACK MOUNTED (A)



TOP MOUNTED (B)



END MOUNTED (C)

HOUSING (AND BRACKET): CAST OR EXTRUDED ALUMINUM.

DOOR FRAME: HINGED WITH LATCH; CAST OR EXTRUDED ALUMINUM.

HOUSING AND DOOR FRAME FINISH: BRUSHED ALUMINUM.

INSCRIPTION PANELS: LUMINOUS: RED: COLOR STABLE PLASTIC OF FIBERGLASS WITH 6-INCH WHITE LETTERS.

DOWNLIGHT: CLEAR ACRYLIC PRISMATIC DIFFUSER IN BOTTOM OF HOUSING.

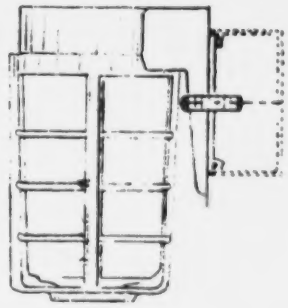
LAMPS: 2 - 15 WATT, T-6 145 VOLT INCANDESCENT WITH MINIMUM 20,000 HOURS LIFE, AND 2 - MINIMUM 3.5 WATT, LOW VOLTAGE DC LAMPS.

EMERGENCY POWER PACK: FULLY AUTOMATIC, TO PROVIDE EMERGENCY ILLUMINATION FOR A MINIMUM OF 90 MINUTES CONTINUOUS SERVICE, UPON FAILURE OF NORMAL ELECTRIC POWER. RECHARGEABLE EMERGENCY SOURCE IN 12 HOURS OR LESS, MAINTENANCE FREE BATTERY, WITH SOLID STATE CHARGER. TEST SWITCH AND LIGHT-EMITTING DIODE INDICATE "READY" CONDITION.

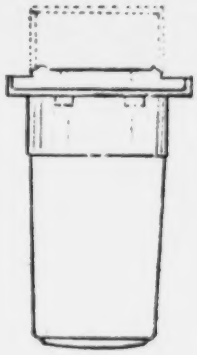
NOTE: LETTERS "DF" ADDED TO SYMBOL DENOTE DOUBLE FACED FIXTURE. FURNISH FIXTURES WITH DIRECTIONAL ARROWS WHERE SHOWN ON DRAWINGS. WIRE TO 120 VOLT OR 277 VOLT OPERATION AS INDICATED. ARROWS SHALL HAVE DISTINCT HEADS AND SHAFTS NOT TO EXTEND LESS THAN 5 INCHES.

EMERGENCY EXIT LIGHTS

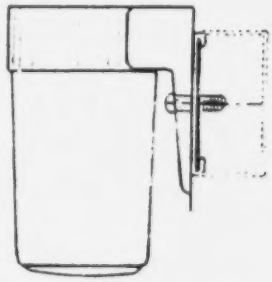
E
N-12.1

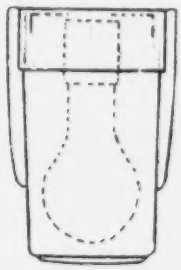


TYPE "A"



TYPE "B"





TYPE "C"

HOUSING: CAST ALUMINUM; THREADED TO RECEIVE DIFF
FOR MOUNTING TO 4" BOX.

WALL BRACKET: CAST ALUMINUM; SHALL PROVIDE SUPPO
WALL BOX TO FIXTURE BODY; 3" OR 4" BOX MOU

DIFFUSER: HEAT AND SHOCK RESISTANT WHITE OPAL G
RIM FOR BODY ATTACHMENT; GASKETED TO BODY.

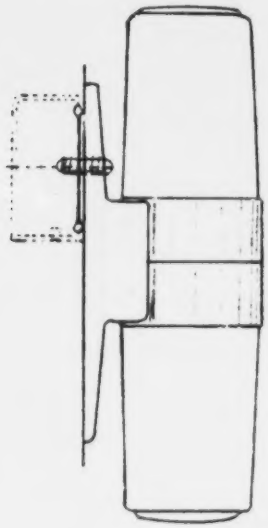
GUARD: CAST ALUMINUM; THREADED OR PROVIDED WITH
FOR ATTACHMENT TO FIXTURE HOUSING.

FINISH: HOUSING, BRACKET, AND GUARD; SATIN ANODI

LAMP: INCANDESCENT.- WATTAGE AS REQUIRED.

LAMPHOLDER(S): MEDIUM BASED, PORCELAIN BODIED.

INCANDESCENT WALL-CEILING FIXTURE



TYPE "D"

FIX. NO.	MAX. WATTS
A	1 - 100
A1	1 - 200
B	1 - 100
B1	1 - 200
C	1 - 100
D	1 - 200
D1	2 - 100
D2	2 - 200

USER; CEILING MOUNTED UNIT

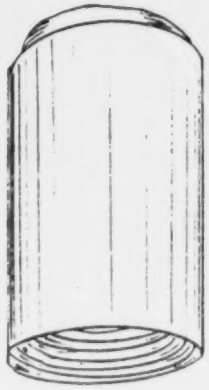
ORT AND WIRING ENTRY FROM
UNTING.

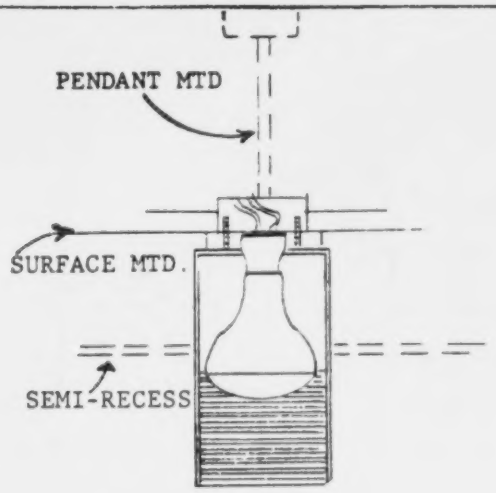
LASS; THREADED OR BAYONET

STAINLESS STEEL SET SCREWS

ZED.

E
N-13





TYPE "A"

HOUSING: CYLINDER OF SEAMLESS ALUMINUM APPROXIMATELY 11-1/2" HIGH BY 6" DIAMETER: TOP PLATE SUPPORTING MEDIUM BASE PORCELAIN BODIED LAMPHOLDER: UNIT DESIGNED TO SURFACE MOUNT TO 4" OUTLET BOX: PROVIDED WITH CIRCULAR LIP OR TRIM SPACER AT CEILING LINE AS HEAT BARRIER. MINIMUM 16 GA HOUSING.

BAFFLE: INTERIOR MULTIPLE GROOVE BLACK PHENOLIC LINER EXTENDING FROM LOWER TRIM EDGE TO POINT OF MAXIMUM LAMP DIAMETER.

FINISH: HOUSING - SATIN OR BRUSHED ALUMINUM: PHENOLIC LINER-BLACK

LAMP: 150 WATT, R-40 REFLECTOR LAMP

TYPE "B"

SAME AS ABOVE EXCEPT DESIGNED FOR, AND PROVIDED WITH STEM, SWIVEL, AND CANOPY FOR PENDENT MOUNTING.

TYPE "C"

SAME AS ABOVE EXCEPT DESIGNED FOR SEMI-RECESSED MOUNTING. WITH 100W, R-40 MERCURY VAPOR LAMP.

E
N-14

SURFACE MOUNTED INCANDESCENT DOWNLIGHT OR HID DOWNLIGHT

PENDENT TAPPED 1/2" I.P.	CEILING FITS 4" OCTAGONAL BOXES	FEED-THRU TAPPED 1/2" I.P.	ANGLE TAPPED 1/2"

REFLECTOR: FORMED STEEL; SHALL SUPPORT LAMPHOLDER AND DETACHABLE DISCONNECT ASSEMBLY.

HOOD: CAST ALUMINUM; CONTAINING MECHANICAL AND ELECTRICAL "TWIST" TYPE DISCONNECT; WEATHERPROOF, SHALL PERMIT INTERIOR OR EXTERIOR USE; FOR PENDENT, SURFACE, OR WALL MOUNTING, AS REQUIRED.

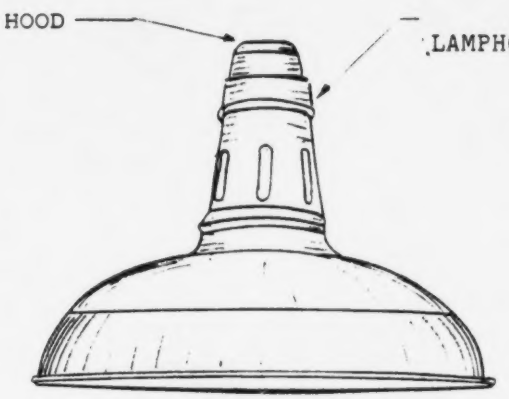
FINISH: PORCELAIN ENAMEL: WHITE OUTSIDE, MIN. 85% REFLECTANCE WHITE INSIDE.

LAMP SOCKET MEDIUM BASE, PORCELAIN BODIED.

LAMP: "A" OR "PS" TYPE:_____ WATTS.

E
N-15

SYMMETRICAL ANGLE INDUSTRIAL INCANDESCENT



REFLECTOR: STANDARD DOME, VENTED TYPE OF FORMED STEEL. SHALL SUPPORT THE LAMPHOLDER AND DETACHABLE DISCONNECT ASSEMBLY.

HOOD: CAST ALUMINUM; CONTAINING MECHANICAL AND ELECTRICAL "TWIST" TYPE DISCONNECT. WEATHERPROOF, SHALL PERMIT INTERIOR OR EXTERIOR USE. FOR PENDENT, SURFACE, OR WALL MOUNTING, AS REQUIRED.

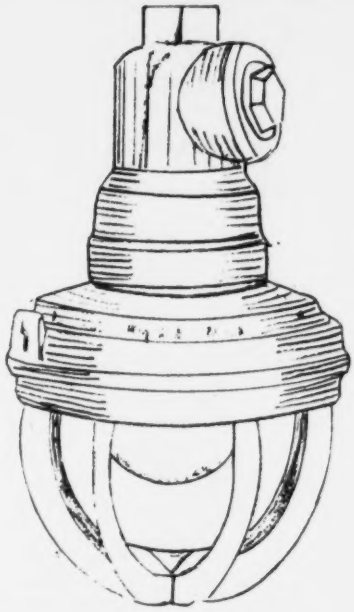
FINISH: PORCELAIN ENAMEL, WHITE OUTSIDE, MINIMUM 85% REFLECTANCE WHITE INSIDE OVER CORROSION SYSTEM PRIMER.

LAMP SOCKET: MEDIUM BASE; PORCELAIN BODIED.

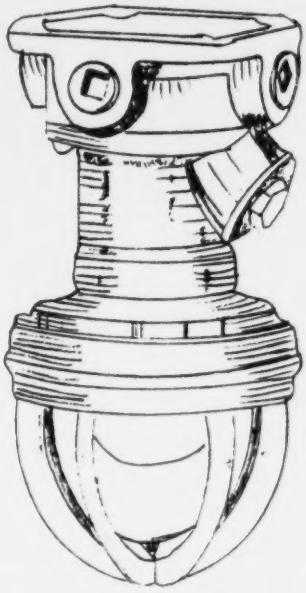
LAMP: A OR PS TYPE; _____WATTS.

INDUSTRIAL RLM INCANDESCENT

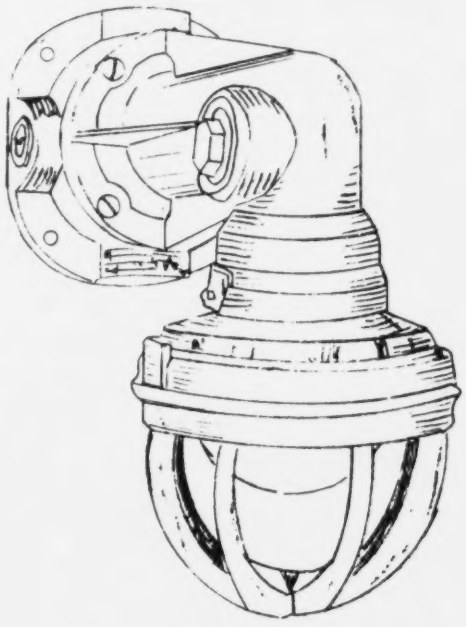
E
N-16



TYPE "A"



TYPE "B"



TYPE "C"

HOODS & BODIES: CAST ALUMINUM; THREADED JOINTS AND ACCESS HUBS; PENDENT HOOD ½" TREADED FOR PENDENT MOUNTING; FLANGED HOODS FOR 4" BOX MOUNTING.

INNER REFLECTOR: ANODIZED ALUMINUM.

GLASSWARE: HEAT-RESITING CLEAR GLASS; HIGH PRESSURE WITHSTAND RATING (MINIMUM 380PSI); SEALED WITH METAL GASKET.

GUARD: CAST ALUMINUM; THREADED FOR BODY ATTACHMENT AND GLASSWARE RETENTION.

LAMPHOLDER: MEDIUM BASED, PORCELAIN BODIED.

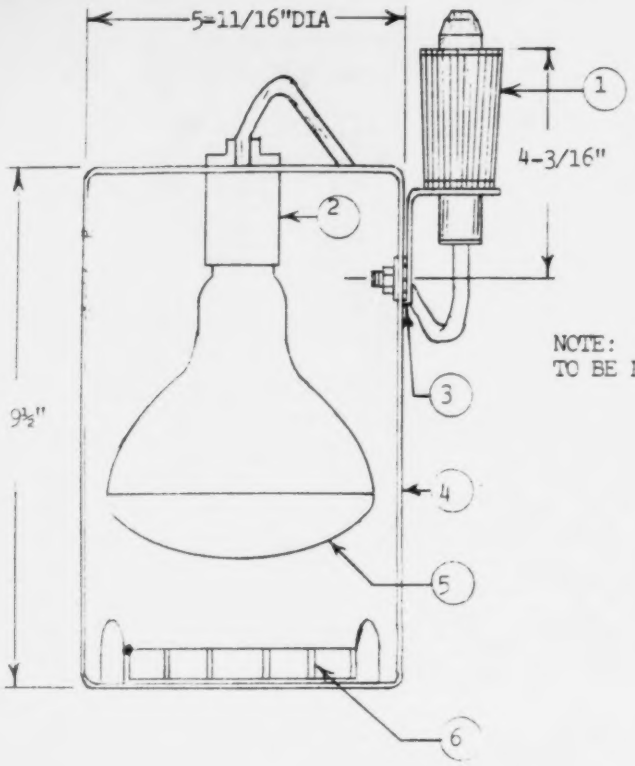
LAMP: INCANDESCENT, A OR PS TYPE;__WATTS

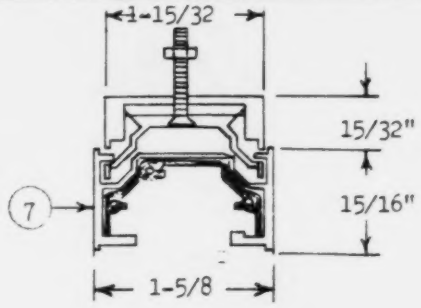
TYPE "A" SAME AS A OR B ABOVE, EXCEPT EQUIPPED WITH ACID RESISTANT, WHITE PORCELAIN ENAMEL STEEL, DOME REFLECTOR.

TYPE "B" SAME AS A, B, OR C ABOVE EXCEPT WITH 30 DEGREE ANGLE, ACID RESISTANT, WHITE PORCELAIN ENAMEL STEEL REFLECTOR.

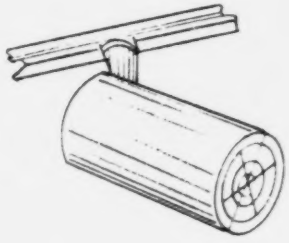
EXPLOSION-PROOF INCANDESCENT
(CLASS I; GROUPS C&D)

E
N-17





NOTE: EACH 8'0" SECTION OF LIGHTING TRACK, TO BE PROVIDED WITH 3 -150W TRACK LIGHTS.



1) TRACK LIGHT CONNECTOR, DIECAST ALUMINUM HOUSING, POLYCARBONATE FITTING, MATTE WHITE FINISH.

2) PROCELAIN SOCKET WITH NICKEL PLATED SCREW SHELL.

3) ASYMMETRICAL YOKE, PIVOT MOUNTED, PRETENSIONED MINIMUM .093 THICK STEEL.

4) MINIMUM .078 THICKNESS SPUN ALUMINUM HOUSING.

5) 150W R-40 FLOOD LAMP.

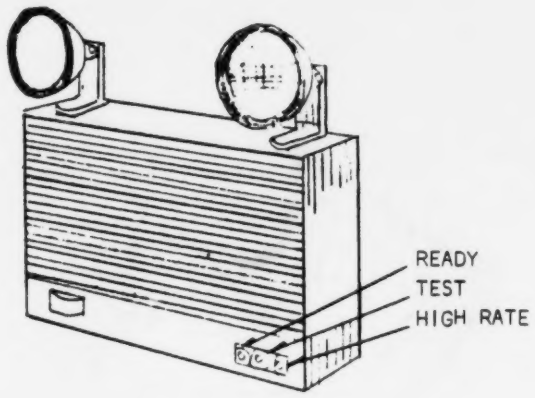
6) DIECAST ALUMINUM CONCENTRIC RING LOUVER. SPRING RETAINED WITH MATTE BLACK FINISH.

7) SURFACE MOUNTED LIGHTING TRACK OF EXTRUDED ALUMINUM WITH CLEAR SATIN ANODIZED FINISH, CONTAINING (3) - #12 AWG SOLID COPPER CONDUCTORS HOUSED IN RIGID PVC. CAPACITY -2- CIRCUITS AT 20 AMP EACH (1200 WATTS INCANDESCENT LOAD PER CIRCUIT).

NOTE: ALL DIMENSIONS ARE APPROXIMATE.

E
N-18

TRACK LIGHTING



DUAL LAMP BATTERY OPERATED EMERGENCY LIGHT FOR USE WITH 120 VOLT SYSTEMS.

CASE: MIN. 20 GAGE STEEL SIDES AND 18 GAGE STEEL FRAMES FINISHED IN A NEUTRAL COLOR WITH CORROSIVE-RESISTANT COATING; HINGED FRONT ACCESS PANEL; OBSERVATION PORT FOR BATTERY LIQUID LEVEL INSPECTION.

BATTERY: 6 VOLT (5 CELL) NICKEL-CADMIUM TYPE IN HIGH IMPACT PLASTIC CASE; SHALL BE LEAK PROOF UNDER NORMAL OPERATING AND HANDLING CIRCUMSTANCES; REQUIRE NO MAINTENANCE DURING MINIMUM 5-YEAR PERIODS.

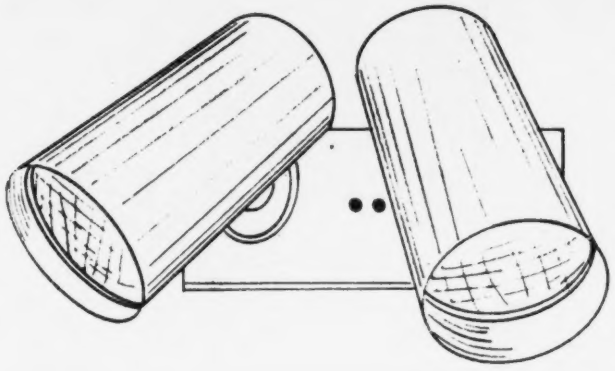
LAMPS: ADJUSTABLE 25-WATT INCANDESCENT SEALED BEAM.

CHARGER: SOLID STATE WITH NO RELAYS; FULL MONITORING OF BATTERY VOLTAGE; HIGH AND TRICKLE CHARGING RATES; SOLID STATE POWER TRANSFER; POSITIVE, LOW BATTERY VOLTAGE, LOAD DISCONNECT.

CONTROLS: TEST SWITCH, HIGH CHARGE RATE LIGHT AND "READY" LIGHT ON CASE FRONT;

OPERATION: LIGHTS AUTOMATICALLY WHEN AC POWER FAILS; PROVIDES MINIMUM OF 3 HOURS OF LIGHT TO 87% OF RATED BATTERY VOLTAGE; LIGHT GOES OUT WITH RETURN OF AC POWER; BATTERY RECHARGES FULLY 12 HOURS.

UNIT SHALL BE FURNISHED WITH 3 FEET OF 3-CONDUCTOR CORD AND GROUNDING PLUG CAP AND ACCESSORIES FOR WALL BRACKET MOUNTING.



HOUSING: WIRING CANOPY BOX OF ALUMINUM WITH AC "ON" LIGHT, HIGH CHARGE LIGHT, AND TEST SWITCH; LAMP CYLINDERS OF SPUN ALUNIMUM, CONTAINING BATTERY/CHARGER UNIT AND/OR SEALED BEAM LAMP.

SWIVELS: CAST METAL WITH POSITIVE SCREW LOCK.

FINISH: CANOPY, BRUSHED ALUMINUM; CYLINDERS, MATTE WHITE; SWIVELS, BLACK.

LAMPS: TWO 25-WATT, 6 VOLT, PAR-36.

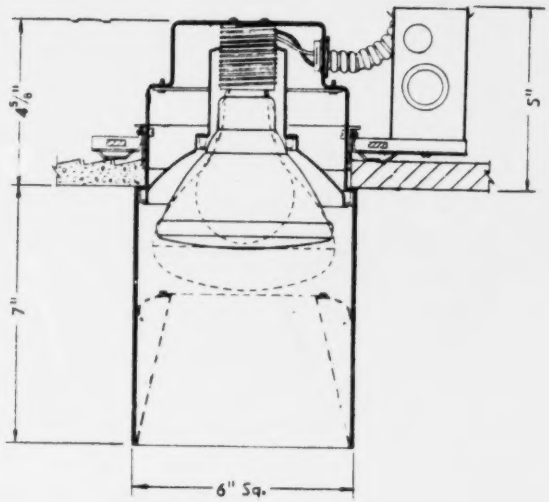
BATTERY: 6 VOLT, SEALED, MAINTENANCE FREE LEAD TYPE WITH 15 YEAR EXPECTED LIFE.

CHARGER: SCR SOLID STATE UNIT; MAINTAINS AND RECHARGES BATTERY FULLY WITHIN 12 HOURS.

OPERATION: LIGHTS AUTOMATICALLY WITH AC POWER FAILURE THROUGH SOLID STATE TRANSFER CIRCUIT. MONITOR CIRCUIT DISCONNECTS LAMP POWER AT MINIMUM 80% BATTERY VOLTAGE. MOMENTARY TEST SWITCH SIMULATES POWER OUTAGE CONDITION.

EMERGENCY BATTERY LIGHT

E
N-20



TYPE "A"

MOUNTING FRAME: STEEL - CADMIUM PLATED - CORROSION RESISTANT.

SQ.TUBE: ONE PIECE 12 GA. ALUMINUM.

FINISH: SATIN ALUMINUM - ANODIZED OUTSIDE, BLACK INSIDE.

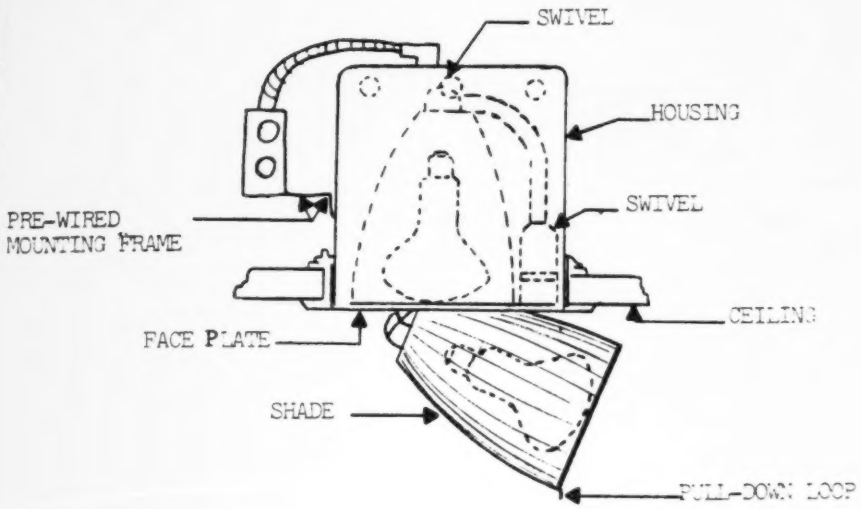
LAMP: MAX. 1-150W A21 OR 1-250W PAR 38 or 1-300W R40, 120V.

LAMPHOLDER: PORCELAIN SOCKET - MEDIUM BASE.

TYPE "B" SAME AS TYPE "A" BUT CYLINDRICAL TUBE.

SEMI-RECESSED DOWN LIGHT

E
N-21



HOUSING FORMED ALUMINUM; VENTILATED; DEPTH MAX. 9 INCHES.

SHADE: DIE - FORMED ALUMINUM WITH PULL DOWN LOOP FOR ADJUSTMENT;

FACE PLATE: DIE - FORMED ALUMINUM.

MOUNTING FRAME: STEEL, FOR USE WITH ADJUSTABLE BRACKETS AND HANGER BARS; PRE - WIRED JUNCTION BOX.

SWIVELS: SPRING LOADED BALL TYPE; PROVIDES SHADE ADJUSTMENT VERTICAL TO 75 DEGREES FROM NADIR, 350 DEGREES MIN. HORIZONTAL SWING.

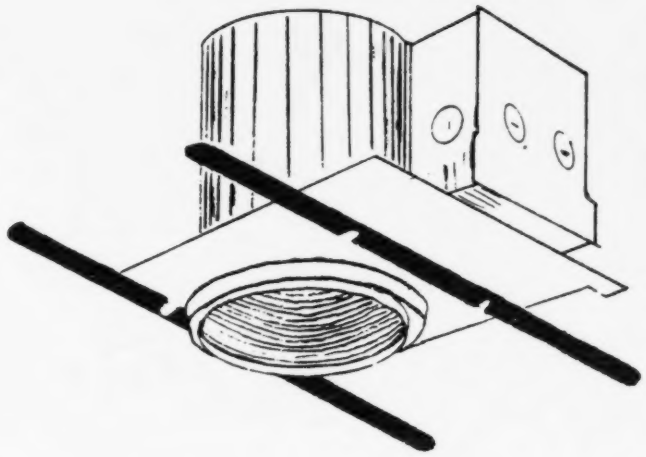
LAMPHOLDER: MEDIUM BASE, PORCELAIN BODIED.

LAMP: 150 WATT, PAR - 38 MAXIMUM.

FINISH: FACE PLATE AND SHADE, SATIN ALUMINUM; INTERIOR SURFACES, MATTE BLACK.

RECESSED ADJUSTABLE ACCENT LIGHT

E
N-22



HOUSING: STEEL, MINIMUM 0.035" THICK, OR 16 GAUGE ALUMINUM; TOP WIRING COMPARTMENT; PRE-WIRED TO ATTACHED FEED THROUGH BOX; DETACHABLE PLASTER FRAME AND UNIVERSAL BAR HANGERS.

TRIM: STEEL OR ALUMINUM; TORSION SPRING RETAINED FOR RELAMPING.

BAFFLE: MULTI-GROOVE BLACK PHENOLIC.

FINISH: HOUSING, BAKED WHITE ENAMEL; TRIM, SATIN WHITE ENAMEL.

LAMP SOCKET: MEDIUM BASE, PORCELAIN BODIED: VERTICALLY ADJUSTABLE FROM BELOW FOR DESIRED LIGHT DISTRIBUTION.

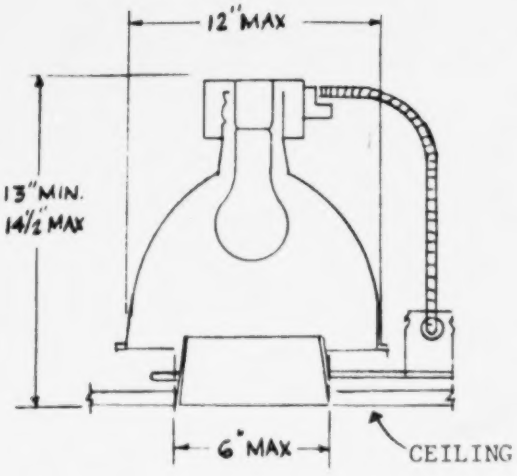
LAMP: INCANDESCENT "R" LAMP; 150 WATTS:
(DESIGNER-INSERT "SPOT", "FLOOD," OR LIGHT DISTRIBUTION DESCRIPTION)

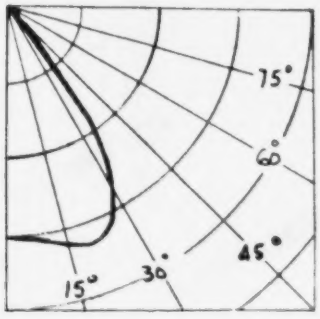
TYPE B

SAME AS ABOVE EXCEPT FOR THE FOLLOWING: REGRESSED GLASS FRESNEL LENS IN LIEU OF BAFFLE.

RECESSED BAFFLED DOWNLIGHT

E
N-23





APPROX. CANDLEPOWER DISTRIBUTION

TYPE "A"

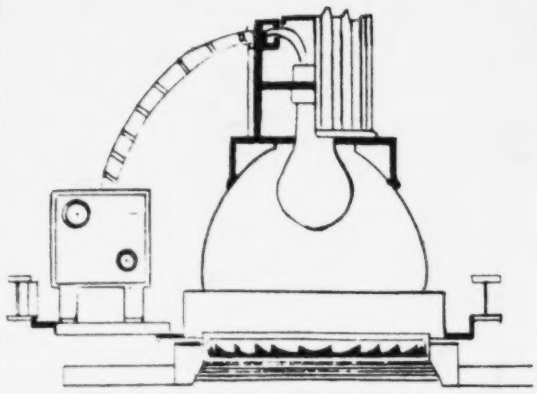
FIXTURE: LATCHES TO BE SPRING LOADED FOR JUNCTION BOX ACCESS AND/OR RELAMPING. REFLECTOR IS SPECULAR ALZAK. APERTURE SHIELD TO BE MOLDED HIGH-HEAT PHENOLIC SEMI-SPECULAR BLACK COLOR AND GASKETED. TRIM RING TO BE DIE-CAST AND REVERSIBLE MATTE WHITE COLOR.

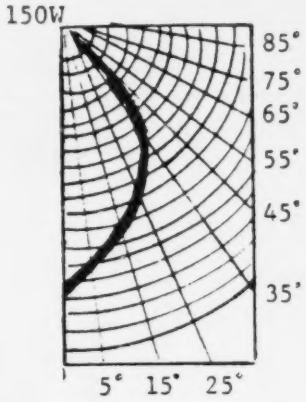
LAMP: 150W INCANDESCENT, 120V

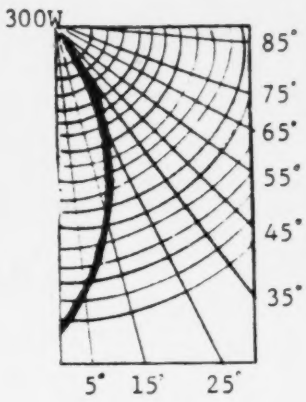
LAMPHOLDER: PORCELAIN MEDIUM BASE.

RECESSED INCANDESCENT FIXTURE

E
N-24







TYPE "A"

FIXTURE: STEPPED REGRESSED WITH FULL REFLECTOR AND FRESNEL LENS. LAMP TO BE VERTICAL MOUNTED. HOUSING FRAME FLANGE AND SOCKET ENCLOSURE TO BE DIECAST AL. SOCKET TO BE ADJUSTABLE FOR DIFFERENT TYPES OF LAMPS. REFLECTOR HOUSING TO BE ALZAK ALUMINUM OR SIMILAR. TRIM RING TO BE DIECAST ALUMINUM STEPPED AND REGRESSED, FINISHED IN MATTE WHITE WITH BLACK OR GRAY STEPS. SUITABLE MOUNTING BRACKETS TO BE SUPPLIED WITH UNIT.

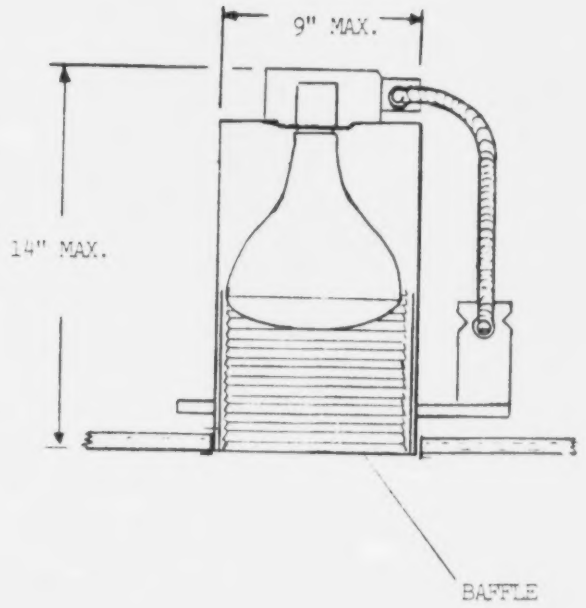
LAMP: ONE 300W PS-25 INCANDESCENT, 120V.

TYPE "B"

SIMILAR TO ABOVE EXCEPT LAMP IS 150W A-23 INCANDESCENT 120 V.

E
N-25

RECESSED INCANDESCENT FIXTURE



HOUSING: STEEL, MINIMUM 0.035" THICK, OR 16 GAUGE ALUMINUM; TOP WIRING COMPARTMENT; PRE-WIRED TO ATTACHED FEED-THROUGH BOX; UNIVERSAL BAR HANGERS.

TRIM: DIE-CAST ALUMINUM; REVERSIBLE TO SUIT PLASTER OR COMPOSITION CEILINGS; APERTURE PLATE RETENTION.

BAFFLE: MULTI-GROOVE BLACK PHENOLIC.

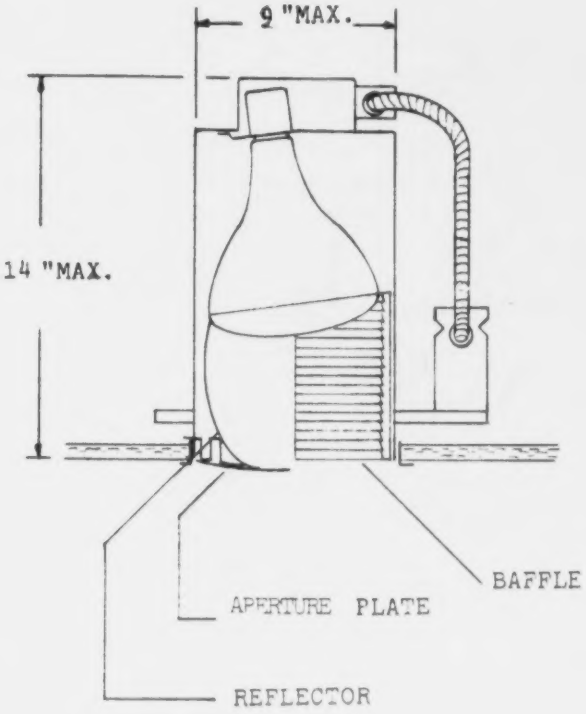
FINISH: HOUSING, BAKED ENAMEL; TRIM, MATTE WHITE ENAMEL; BAFFLE, BLACK.

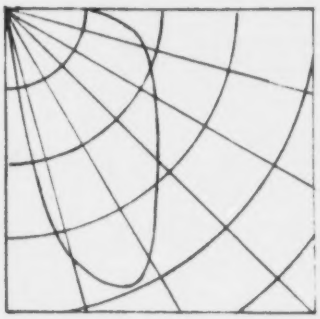
LAMP SOCKET: MEDIUM BASE, PORCELAIN BODIED.

LAMP: INCANDESCENT FLOOD, TYPE; R40, 150 WATTS.

RECESSED MULTI-GROVE INCANDESCENT

E
N-26





DISTRIBUTION CURVE

HOUSING: STEEL, MINIMUM 0.035" THICK, OR 16 GAUGE ALUMINUM; TOP WIRING COMPARTMENT; PRE-WIRED TO ATTACHED FEED-THROUGH BOX; UNIVERSAL BAR HANGERS.

TRIM: DIE-CAST ALUMINUM; REVERSIBLE TO SUIT PLASTER OR COMPOSITION CEILINGS; APERTURE PLATE RETENTION.

APERTURE PLATE/REFLECTOR: DIE-CAST ALUMINUM LID PLATE AND FORMED ALUMINUM REFLECTOR; SNAP-OUT DESIGN; TORSION SPRING OR CHAIN RETENTION FOR RELAMPING; 360° POSITIONING.

BAFFLE: MULTI- GROOVE BLACK PHENOLIC.

FINISH: HOUSING, BAKED ENAMEL; TRIM AND APERTURE PLATE, MATTE WHITE ENAMEL; REFLECTOR, SEMI-SPECULAR ANODIZED.

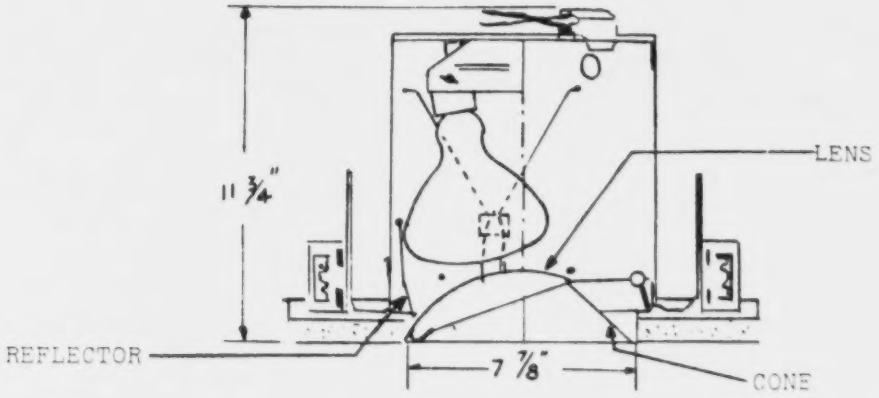
LAMP SOCKET: MEDIUM BASE, PORCELAIN BODIED; ROTATIONALLY ADJUSTABLE FROM BELOW.

LAMP: INCANDESCENT FLOOD, "R" TYPE; 150 WATTS.

DISTRIBUTION: ESSENTIALLY UNIFORM WALL ILLUMINATION TO CEILING LINE; WHEN 3 FEET FROM WALL ON 3 FEET SPACING, WALL ILLUMINATION 10 FEET BELOW CEILING

E
N-27

MULTI-GROVE WALL WASHER



HOUSING: 20 GAUGE STEEL

FINISH: BAKED ON MATTE BLACK

LENS: CONCAVE 70° SPREAD.

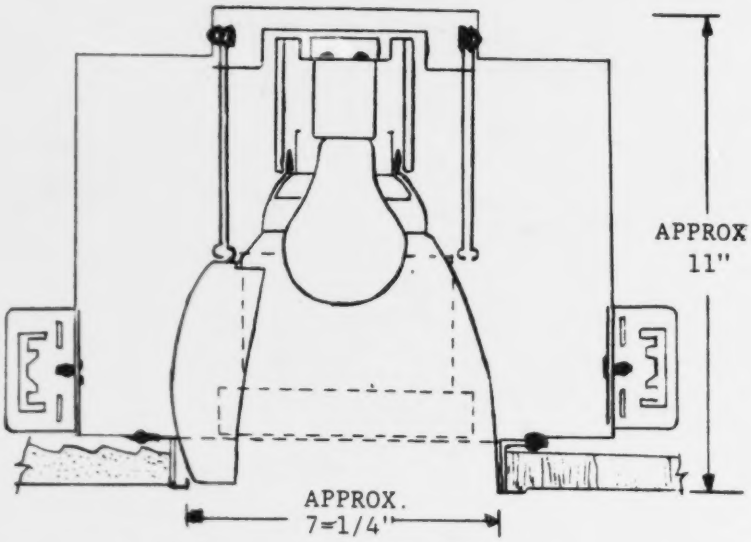
SOCKET: PRESET 10° LAMP TILT.

REFLECTOR: SPECULAR ALZAK ALUMINUM.

LAMP: 250 W PAR 38 Q FLOOD. 120 V.

E
N-28

RECESSED WALL WASHER



CONSTRUCTION: EXTRUDED ALUMINUM NECK WITH PROCELAIN SOCKET MOUNTED ON YOKE WITH VERTICAL ADJUSTMENT.

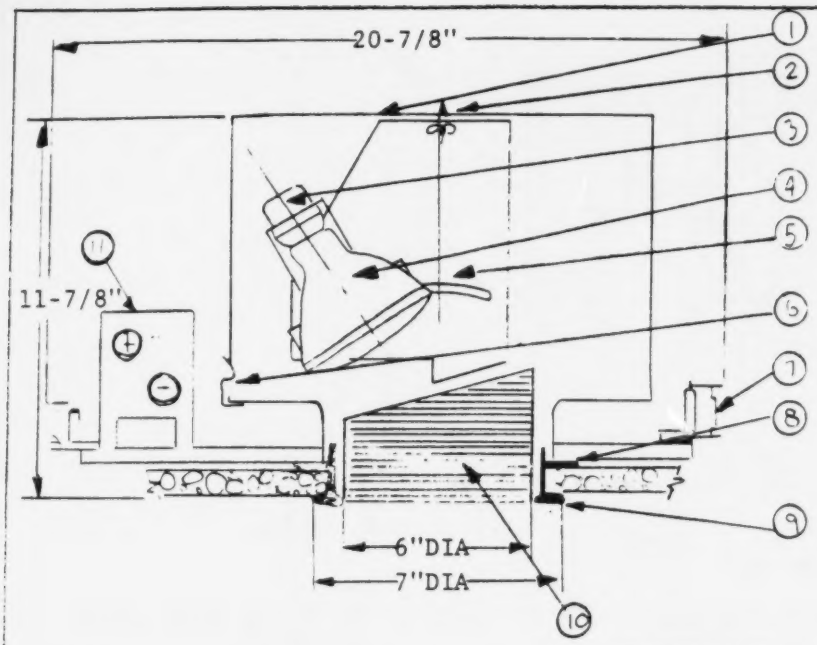
REFLECTOR: DOWN LIGHT - SPECULAR ALZAK - ROTABLE WALL WASH - DIFFUSE ALZAK.

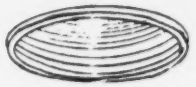
LAMP: INCANDESCENT 1-150 W A-21 IF. 120 VOLT.

MOUNTING: ON CHANNEL ABOVE PLASTER OR DRY CONSTRUCTION CEILING.

RECESSED WALL WASHER DOWN LIGHT

E
N-29





MILLIGROOVE BAFFLE

1) HOUSING: MADE OF MIN. 20 GA. STEEL, TOP RELAMPING.

2) HORIZONTAL ADJUSTMENT - CENTER PIVOT OF 350° HORIZONTAL ADJUSTMENT.

3) SOCKET: PORCELAIN WITH NICKEL PLATED SCREW SHELL.

4) LAMP: INCANDESCENT, 75W. PAR-38, 120 VOLT.

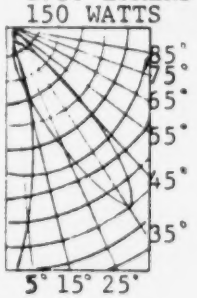
5) VERTICAL ADJUSTMENT: 35° VERTICAL ADJUSTMENT.

6) LATCH: HOUSING RETAINING SPRING.

APPROXIMATE
BEAM ANGLE AND DIAMETER
TO 10% OF MAX. CANDLEPOWER

DIAMETER OF CIRCLE ILLUMINATED		FIXTURE OPENING TO WORK PLANE*
	30°	
3'-0"	381	5'-6"
4'-7"	205	7'-6"
5'-2"	128	9'-6"
6'-3"	87	11'-6"
	MAX FT/C	

*AT WORK PLANE=30" ABOVE FLOOR



7) ADJUSTABLE BAR HANGERS AND "C" BRACKETS TO BE SUPPLIED WITH FIXTURE.

8) DIE CAST ALUMINUM PLASTER FRAME.

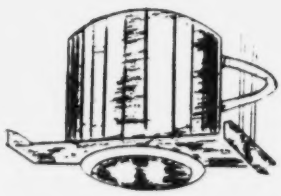
9) WHITE POLYCARBONATE TRIM RING.

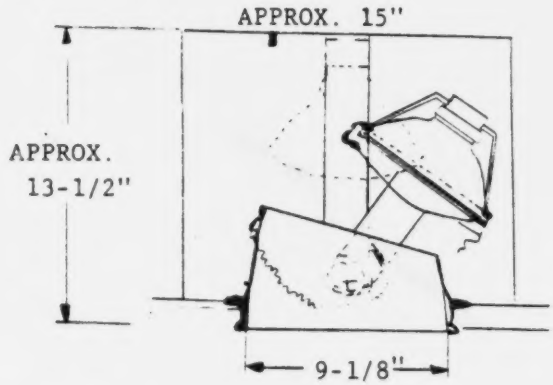
10) BLACK MILLIGROOVE BAFFLE.

11) JUNCTION BOX: MADE OF 14 GA. STEEL.

E
N-30

RECESSED ADJUSTABLE SPOT FEATURES





HOUSING: 19 GAUGE STEEL.

FINISH: BAKED ON MATTE BLACK.

REFLECTOR: BLACK SPECULAR ALZAK ALUMINUM - PARABOLIC.

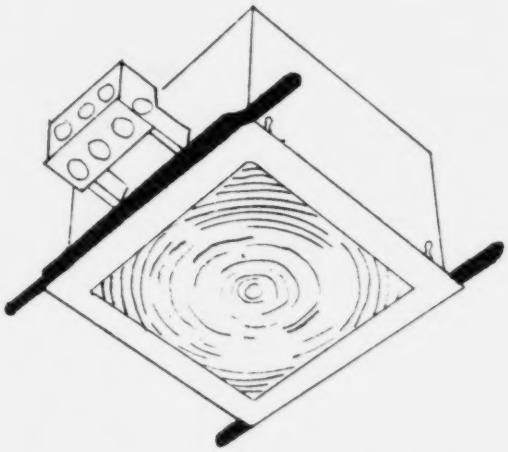
LAMP ADJUSTMENT: 0- 35° TILT AND 350° HORIZONTAL ROTATION.

LAMP: 300W PAR 56 NARROW SPOT FOR USE AT 120 VOLTS.

TRIM: MATTE WHITE POLYCARBONATE TRIM FOR DRY CEILING INSTALLATION.

E
N-31

RECESSED OPEN REFLECTOR ADJUSTABLE DOWNLIGHT



HOUSING: STEEL A MINIMUM OF 0.035-INCH THICK; DEEP DRAWN OR WELDED CONSTRUCTION; SHALL SUPPORT PORCELAIN BODIED MEDIUM BASED LAMPHOLDER PREWIRED TO EXTERNAL SPLICE BOX; FURNISHED WITH MOUNTING ACCESSORIES APPLICABLE FOR THE CEILING CONSTRUCTION.

REFLECTOR: ALUMINUM, ONE PIECE; PUNCHED TO RECEIVE LAMPHOLDER; SPECULAR ALZAK (OR EQUAL) FINISH.

LENS DOOR AND TRIM FRAME: STEEL OR DIE-CAST ALUMINUM; SEPARABLE HINGING; SECURED WITH INCONSPICUOUS LATCH RELEASED BY RAISING THE LENS; SHALL SECURELY RETAIN THE GLASS LENS.

FINISHES: HOUSING--BAKED ENAMEL OVER A MULTI-STAGE CORROSION RESISTANT PRIMER; FRAME--BAKED WHITE ENAMEL OVER SUITABLE PRIMER.

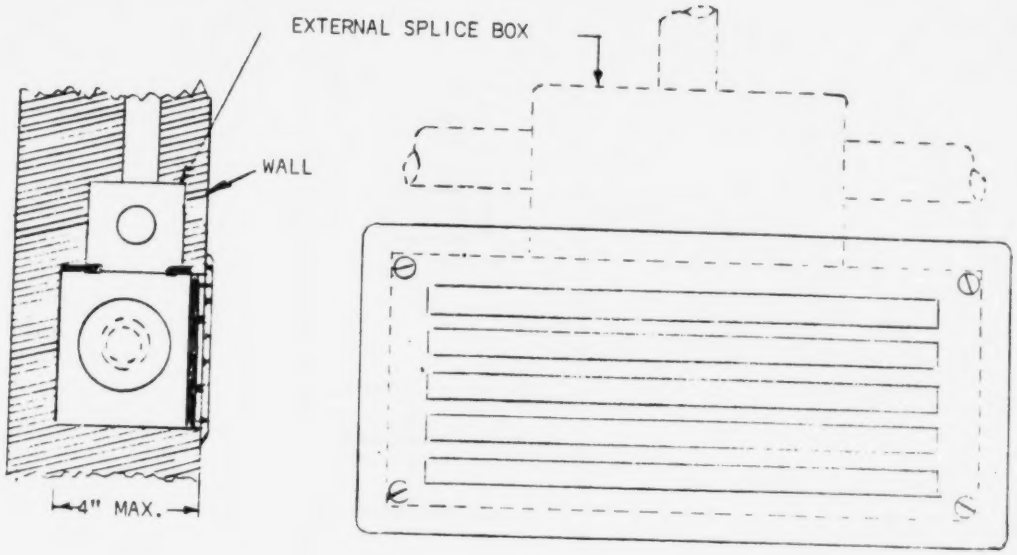
LENS: CLEAR HEAVY TEMPERED GLASS WITH FRESNEL LENS OR PRISMATIC CONFIGURATIONS; SYMMETRICAL MEDIUM LIGHT DISTRIBUTION; CANDLE POWER DISTRIBUTION ABOVE 50 DEGREES FROM NADIR LESS THAN ONE-HALF MAXIMUM; MAXIMUM SPACING TO MOUNTING HEIGHT RATIO BETWEEN 1.0 AND 1.4.

LAMP: 150 WATT INCANDESCENT, MOUNTED HORIZONTALLY.

FIXTURE TYPE "B" SAME CONSTRUCTION AS ABOVE EXCEPT WITH DEEPER HOUSING AND DESIGNED FOR VERTICAL LAMP MOUNTING.

RECESSED INCANDESCENT FIXTURE (NOMINAL 1' x 1' SQUARE)

E
N-32



HOUSING: CAST ALUMINUM A MINIMUM OF 5/32" THICKNESS; SUITABLE FOR USE IN CONCRETE POURINGS; SEPARATE CAST SPLICE BOX FOR THROUGH WIRING; 3/4" TAPPED AND PLUGGED CONDUIT ENTRY HOLES IN SIDES OF HOUSING AND SPLICE BOX; REMOVABLE BARRIER PLATE FOR ACCESS TO SPLICE BOX; SUPPORTS FOR REFLECTOR, LAMPHOLDER AND COVER PLATE.

REFLECTOR: SEPARABLE, SPECULAR ANODIZED ALUMINUM; OR HOUSING ITSELF.

COVER PLATE: CAST ALUMINUM WITH INTEGRAL 45 DEGREE LOUVERS; BACKED BY CLEAR GLASS, 3/16" MINIMUM THICKNESS; RETAINED BY A MINIMUM OF TWO STAINLESS STEEL SCREWS.

GASKETS: MOISTURE SEALING AND HEAT RESISTANT TYPE; BETWEEN HOUSING AND SPLICE BOX, COVER PLATE AND HOUSING, COVER PLATE AND GLASS.

FINISH: HOUSING - ANODIZED; COVER PLATE - ANODIZED SATIN ALUMINUM.

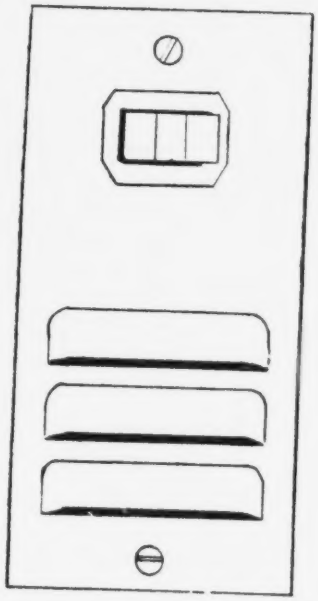
LAMPHOLDER: PORCELAIN BODIED, MEDIUM BASE.

LAMP: INCANDESCENT; MAXIMUM SIZED AS REQUIRED: 1-40 WATT, 1-60 WATT, OR 1-100 WATT.

TYPE 'A' SAME CONSTRUCTION AS ABOVE EXCEPT PROVIDED WITH TEMPERED GLASS, AND SPANNER HEAD TYPE COVER PLATE SCREWS.

RECESSED STEPLIGHT

E
N-33



HOUSING: MINIMUM OF 0.035" THICK STEEL OUTLET BOX AND FACE PLATE: FLUSH WALL MOUNTING: FURNISHED WITH KNOCKOUTS FOR WIRING. SUPPORTS FOR REFLECTOR, LAMPHOLDER, SWITCH, AND FACE PLATE.

REFLECTOR: SEPARABLE, SPECULARLY FINISHED ALUMINUM, OR HOUSING ITSELF.

FACE PLATE & TRIM: INTEGRAL LOUVERED FACE PLATE IN TRIM FRAME: CAST ALUMINUM OR FORM STEEL, MINIMUM 0.047"; MOUNTED TO BOX WITH TWO MACHINE SCREWS. OPENING IN FACE PLATE FOR TOGGLE SWITCH (QUIET TYPE).

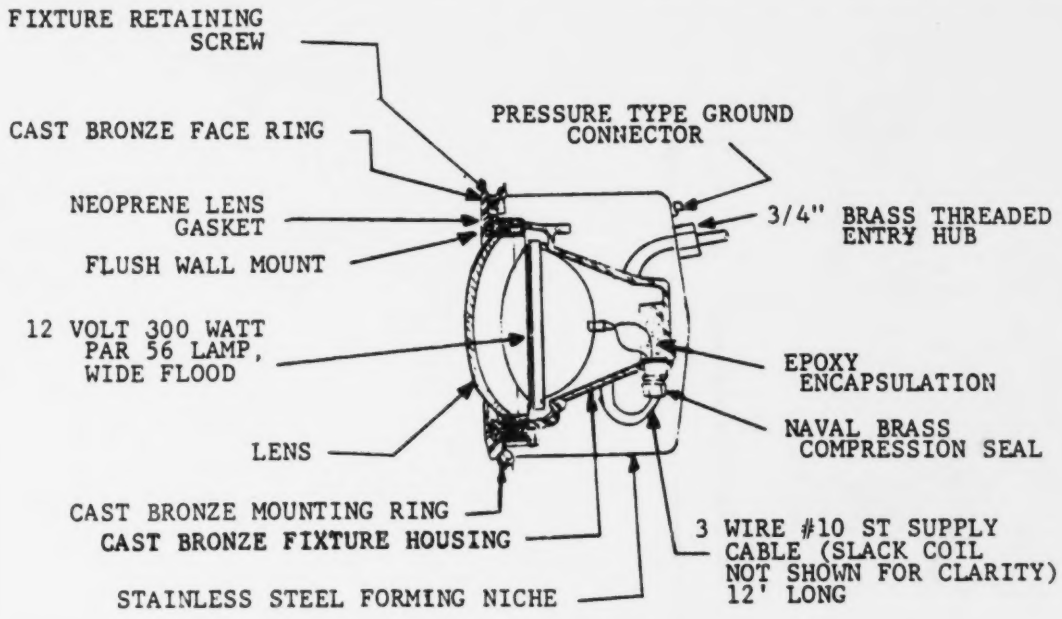
FINISH: HOUSING - BAKED WHITE ENAMEL INTERIOR OVER CORROSION RESISTANT PRIMER. FACE PLATE TO BE CORROSION RESISTANT STEEL. ALL OTHER METAL PARTS TO BE NON-CORROSIVE.

LAMPHOLDER: BAKELITE BODY, CANDELABRA BASE.

LAMP: ONE 7 WATT INCANDESCENT, 120V.

WALL MOUNTED AUXILIARY LIGHT WITH SWITCH

E
N-34


FIXTURE RETAINING SCREW
CAST BRONZE FACE RING
PRESSURE TYPE GROUND CONNECTOR
NEOPRENE LENS GASKET
3/4" BRASS THREADED ENTRY HUB
FLUSH WALL MOUNT
12 VOLT 300 WATT PAR 56 LAMP, WIDE FLOOD
EPOXY ENCAPSULATION
NAVAL BRASS COMPRESSION SEAL
LENS
CAST BRONZE MOUNTING RING
CAST BRONZE FIXTURE HOUSING
3 WIRE #10 ST SUPPLY CABLE (SLACK COIL NOT SHOWN FOR CLARITY) 12' LONG
STAINLESS STEEL FORMING NICHE

OVERALL DIMENSIONS - 12-1/4"DIA. 8-1/4" DEEP

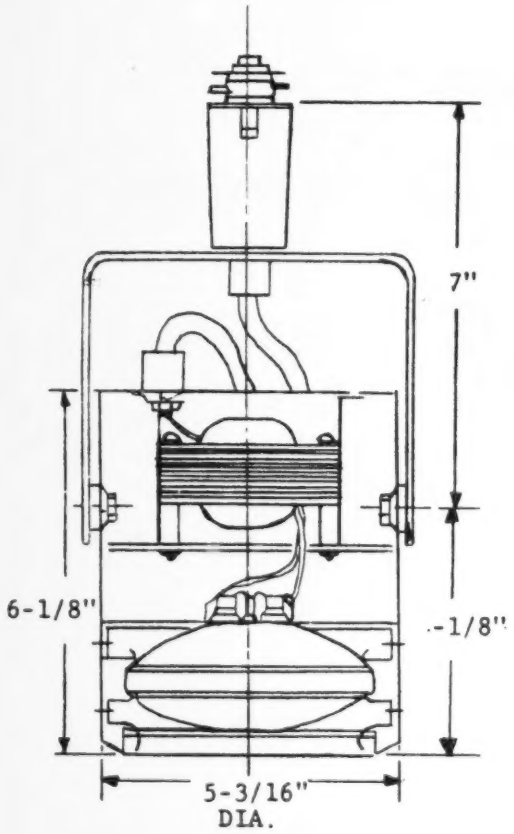
CODES: THE FIXTURE SHALL BE APPROVED UNDERWATER WET NICHE SWIMMING POOL LIGHT, AND SHALL MEET APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND SHALL BE LISTED BY UNDERWRITERS' LABORATORIES, INC. UNDER SWIMMING POOL GUIDE NUMBER 380 U6 AND 380 U10.

LENS: TEMPERED GLASS, DESIGNED FOR 30° SPREAD X 15° DOWNWARD DEFLECTION.

TRANSFORMER: FURNISH TWO EACH 110 VOLT-AMP, 120 VOLT TO 12/12/14 (MULTIPLE TAP) VOLT TRANSFORMERS, ONE TRANSFORMER PER TWO FIXTURES. THE TRANSFORMERS SHALL BE MOUNTED IN NEMA 3 WEATHERPROOF ENCLOSURES.

SWIMMING POOL FIXTURE

E
N-35



HOUSING: .050 INCH THICK SPUN ALUMINUM MATTE WHITE FINISH.

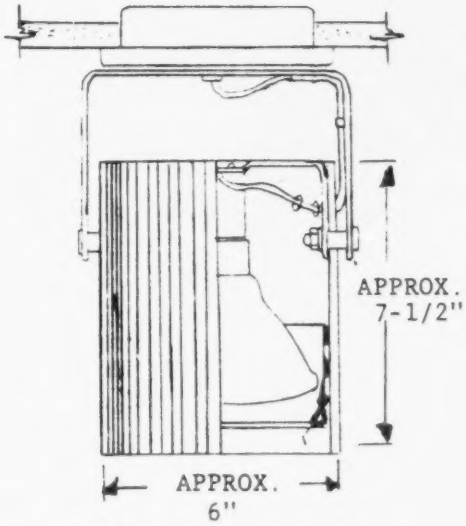
ADAPTOR: COMPATIBLE WITH TRACK.

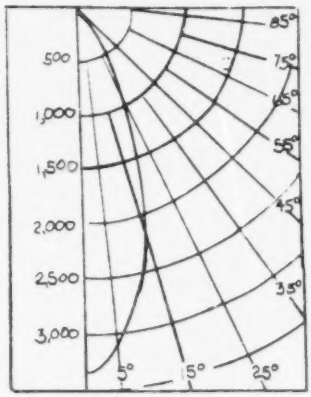
LAMP: 50W PAR 36 NARROW SPOT WITH SCREW TERMINAL BASE.

TRANSFORMER: 120V-12V SELF CONTAINED.

E
N-36

TRACK MOUNTED SPOTLIGHT.





HOUSING: #16 GAUGE STEEL LAMP HOUSING WITH CYLINDRICAL EXTRUDED ANODIZED ALUMINUM OUTSIDE STEEL.

YOKE: STEEL

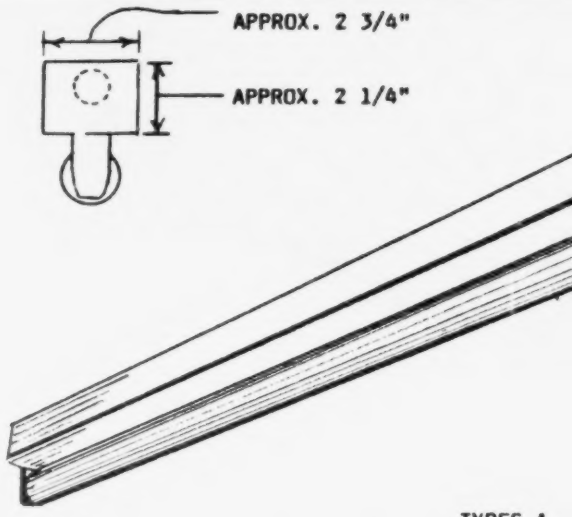
FINISH: SATIN WHITE

LAMP: 1-250 W. QUARTZ PAR 38 SPOT. 120 VOLT.

MOUNTING: CANOPY FOR 4" OCTAGON BOX.

E
N-37

CANOPY MOUNTED SPOTLIGHT



TYPES A,

HOUSING CHANNEL: STEEL A MINIMUM OF 0.035 INCH
OUTLET CONNECTIONS AND MOUNTING; NOTCHED STRA
TURNING THREADED STUDS FOR BALLAST MOUNTING A
JOINING UNITS IN CONTINUOUS ROW.

END CAPS: STEEL A MINIMUM OF 0.035 INCH THICK;
BETWEEN UNITS IN CONTINUOUS ROW.

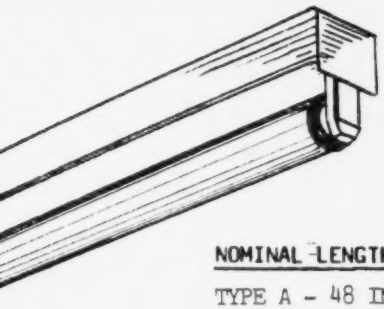
COVER: STEEL A MINIMUM OF 0.029 INCH THICK; FOR
TWO LOCKING SCREW DEVICES.

FINISH: CHANNEL HOUSING, END CAPS, AND COVER-BA
PRIMER.

BALLAST: TYPES A & B; SINGLE-LAMP, HPF, RAPID S
TYPE C; SINGLE-LAMP, HPF, TRIGGER STAR

LAMP: TYPE A; 1 F-40, T-12, RAPID START
TYPE B; 1 F-30, T-12, RAPID START
TYPE C; 1 F-20, T-12, PREHEAT FLUO

SINGLE-LAMP OPEN FLUORESCENT STRIPLIGHT



NOMINAL LENGTHS

TYPE A - 48 INCHES
TYPE B - 36 INCHES
TYPE C - 24 INCHES

B, & C

THICK; APPROPRIATE KNOCKOUTS ON TOP FOR
P FOR LAMPHOLDER SUPPORT; CAPTIVE NON-
ND FIXTURE GROUNDING; WITH ALIGNER FOR

WITH KNOCKOUT; MAY BE USED AS ALIGNER

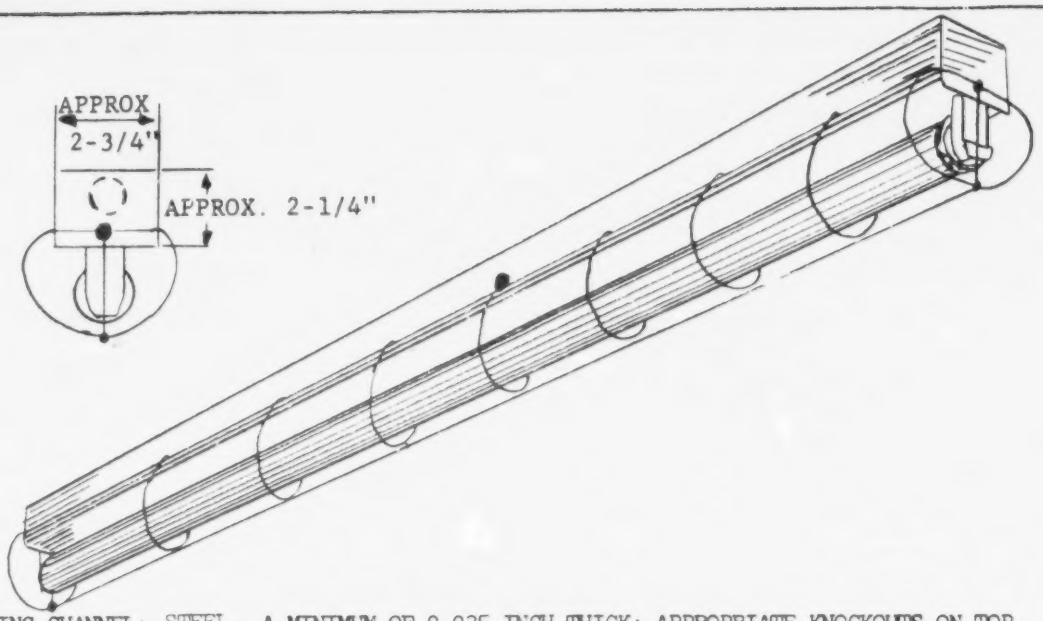
MED FOR STRENGTH; SECURED BY MINIMUM OF

KED WHITE ENAMEL OVER CORROSION RESISTANT

TART AS SPECIFED.
T AS SPECIFIED.

FLUORESCENT.
FLUORESCENT.
ORESCENT.

E
F-1



HOUSING CHANNEL: STEEL A MINIMUM OF 0.035 INCH THICK; APPROPRIATE KNOCKOUTS ON TOP FOR OUTLET CONNECTIONS AND MOUNTING; NOTCHED STRAP FOR LAMPHOLDER SUPPORT; CAPTIVE NON-TURNING THREADED STUDS FOR BALLAST MOUNTING AND FIXTURE GROUNDING; WITH ALIGNER FOR JOINING UNITS IN CONTINUOUS ROW.

END CAPS: STEEL A MINIMUM OF 0.035 INCH THICK; WITH KNOCKOUT; MAY BE USED AS ALIGNER BETWEEN UNITS IN CONTINUOUS ROW.

COVER: STEEL A MINIMUM OF 0.029 INCH THICK; FORMED FOR STRENGTH; SECURED BY MINIMUM OF TWO LOCKING SCREW DEVICES.

FINISH: CHANNEL HOUSING, END CAPS, AND COVER-BAKED WHITE ENAMEL OVER CORROSION RESISTANT PRIMER.

BALLAST: TYPES A & B; SINGLE-LAMP, HPF, RAPID START AS SPECIFIED. TYPE ; SINGLE-LAMP, HPF OR TRIGGER START AS SPECIFIED.

LAMP: TYPE A; F40, T-12, RAPID START FLUORESCENT.

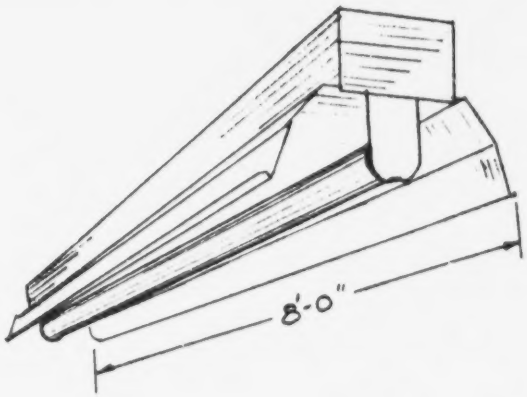
WIRE GUARD: WELDED, CORROSION RESISTANT STEEL.

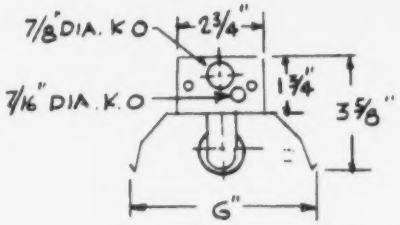
TYPE 'B'- F30, T-12 RAPID START FLUORESCENT.

TYPE 'C'- F20, T-12 PREHEAT FLUORESCENT.

E
F-2

SINGLE-LAMP OPEN FLUORESCENT STRIPLIGHT





TYPE A

HOUSING: HEAVY GAUGE DIE FORMED COLD ROLLED STEEL.

FINISH: HIGH GLOSS BAKED WHITE ENAMEL.

LAMPS: 2- F 40,T-12 TANDEM MOUNTED.

BALLAST: H.P.F. RAPID START 120 VOLTS.

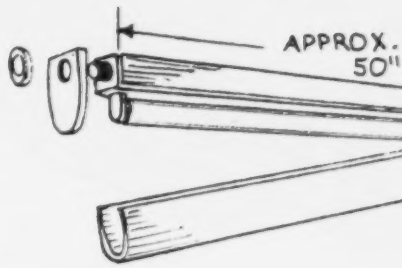
REFLECTOR: SYMMETRIC 20 GAUGE STEEL WITH BAKED WHITE ENAMEL FINISH INSIDE AND OUT.

TYPE B:

SAME AS TYPE A EXCEPT WITH SINGLE F40 LAMP AND NOMINAL 48" LENGTH

STRIP LIGHT WITH SYMMETRIC REFLECTOR.

E
F-4



HOUSING: ZINC COATED STEEL DOUBL

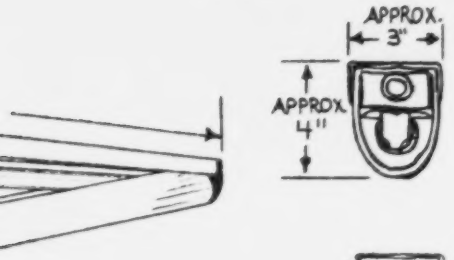
FINISH: WHITE ENAMEL MINIMUM REFL
PLATED. END CAPS - 304 STAINLESS

SHIEDD: THERMOPLASTIC ACRYLIC RES

LAMP: 1-F40-T12 RAPID START.

BALLAST: SINGLE LAMP, H.P.F. RAPID ST

SINGLE TUBE ENCLOSED AND GASKETED FL



E THICKNESS MINIMUM .029 INCHES EACH.

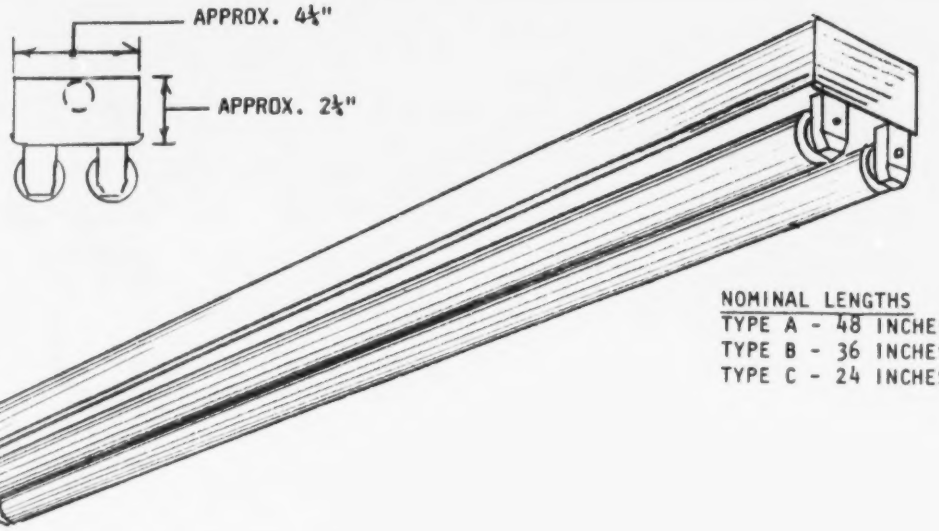
ECTANCE 80% HUBS, PLUGS, RINGS-CHROME
STEEL.

IN 1/8" THICKNESS WHITE TRANSLUCENT.

ART FOR USE AT 120 VOLT.

DORESCENT

E
F-5



NOMINAL LENGTHS
TYPE A - 48 INCHES
TYPE B - 36 INCHES
TYPE C - 24 INCHES

HOUSING CHANNEL: STEEL A MINIMUM OF 0.035 INCH THICK; APPROPRIATE KNOCKOUTS ON TOP FOR OUTLET CONNECTIONS AND MOUNTING; NOTCHED STRAP FOR LAMPHOLDER SUPPORT; CAPTIVE NON-TURNING THREADED STUDS FOR BALLAST MOUNTING AND FIXTURE GROUNDING; WITH ALIGNER FOR JOINING UNITS IN CONTINUOUS ROW.

END CAPS: STEEL A MINIMUM OF 0.035 INCH THICK; WITH KNOCKOUT; MAY BE USED AS ALIGNER BETWEEN UNITS IN CONTINUOUS ROW.

COVER: STEEL A MINIMUM OF 0.029 INCH THICK; FORMED FOR STRENGTH; SECURED BY MINIMUM OF TWO LOCKING SCREW DEVICES.

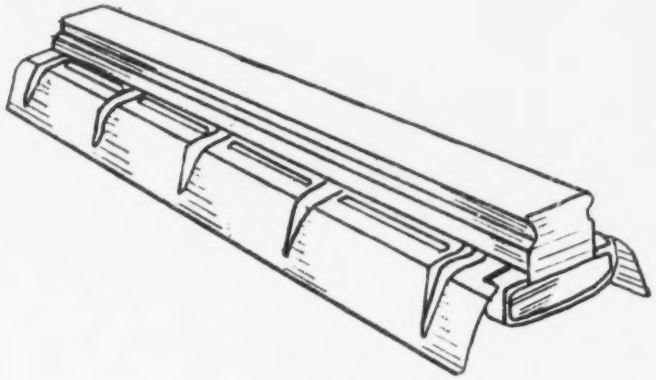
FINISH: CHANNEL HOUSING, END CAPS, AND COVER-BAKED WHITE ENAMEL OVER CORROSION RESISTANT PRIMER.

BALLAST: TYPES A & B: TWO-LAMP, HPF, RAPID START AS SPECIFIED.
TYPE C: TWO-LAMP, HPF, TRIGGER START AS SPECIFIED.

LAMPS: TYPE A; 2-F40, T-12, RAPID START FLUORESCENT.
TYPE B; 2-F30, T-12, RAPID START FLUORESCENT.
TYPE C; 2-F20, T-12, PREHEAT FLUORESCENT.

TWO-LAMP OPEN FLUORESCENT STRIPLIGHT

E
F-6



CHANNEL: 20 GAGE STEEL FINISHED INSIDE AND OUTSIDE WITH BAKED WHITE ENAMEL.

REFLECTOR: 20 GAGE STEEL WITH PORCELAIN ENAMEL FINISH INSIDE AND OUT. APERTURED FOR 10% UPLIGHT.

END CAPS: 20 GAGE STEEL FINISHED TO MATCH CHANNEL.

BALLAST: H.P.F. RAPID START

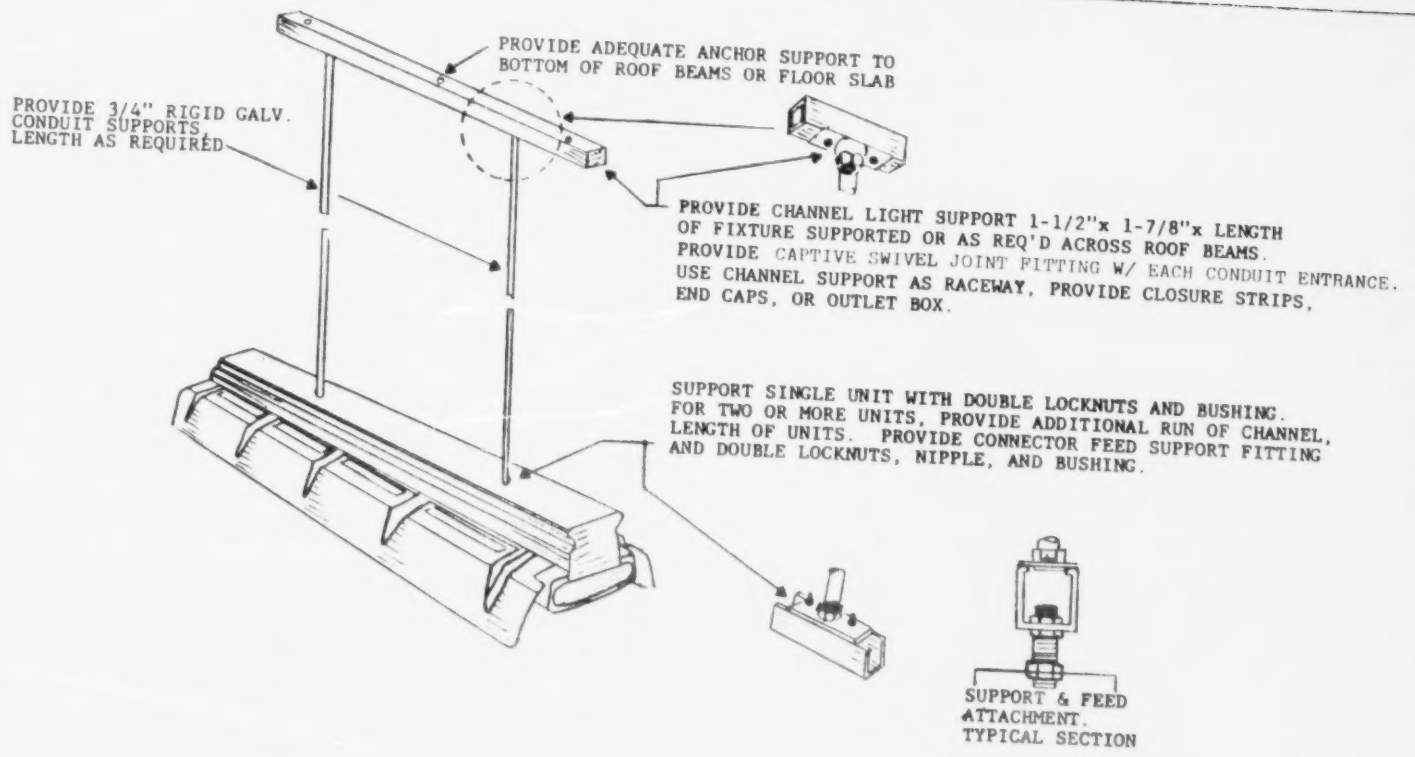
LAMPHOLDER: TURRET TYPE.

LAMPS: TWO F40 , T-12 COOL WHITE FLUORESCENT.

MOUNTING: SURFACE OR 1/2"ø STEM SUSPENDED.

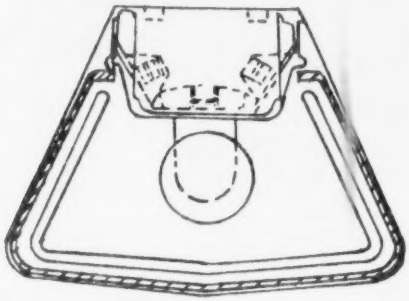
E
F-7

FLUORESCENT INDUSTRIAL FIXTURE


PROVIDE ADEQUATE ANCHOR SUPPORT TO BOTTOM OF ROOF BEAMS OR FLOOR SLAB
PROVIDE 3/4" RIGID GALV. CONDUIT SUPPORTS. LENGTH AS REQUIRED
PROVIDE CHANNEL LIGHT SUPPORT 1-1/2"x 1-7/8"x LENGTH OF FIXTURE SUPPORTED OR AS REQ'D ACROSS ROOF BEAMS. PROVIDE CAPTIVE SWIVEL JOINT FITTING W/ EACH CONDUIT ENTRANCE. USE CHANNEL SUPPORT AS RACEWAY, PROVIDE CLOSURE STRIPS, END CAPS, OR OUTLET BOX.
SUPPORT SINGLE UNIT WITH DOUBLE LOCKNUTS AND BUSHING. FOR TWO OR MORE UNITS, PROVIDE ADDITIONAL RUN OF CHANNEL, LENGTH OF UNITS. PROVIDE CONNECTOR FEED SUPPORT FITTING AND DOUBLE LOCKNUTS, NIPPLE, AND BUSHING.
SUPPORT & FEED ATTACHMENT. TYPICAL SECTION

TYPICAL INDUSTRIAL MOUNTING DETAIL

E
F.8



TYPE "A"

HOUSING: Steel, minimum 0.035 inch thick; top knockouts for outlet connections and mounting; notched strap for lampholder support; sui able for continuous row mounting and through wiring.

CHASSIS COVER: Steel, minimum 0.030 inch thick; formed for strength; secured by minimum of two locking screw devices.

FINISH: Baked enamel over corrosion resistent primer; channel and reflector, white; interior reflecting surfaces, minimum 85% reflectance.

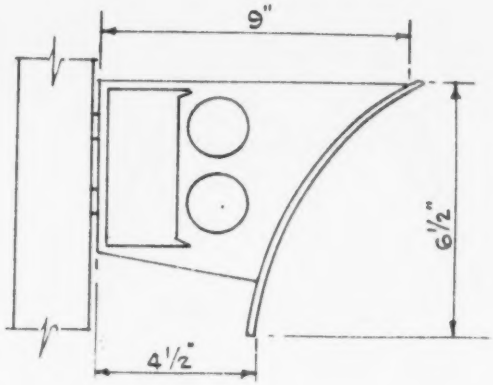
REFRACTOR ENCLOSURE: One-piece, clear prismatic, 100% acrylic plastic; profile as shown, or rectangular in section; readily removable, and hinged for relamping average brightness with 3100 lumen lamps, maximum 400 footlamberts crosswise and 510 endwise in the 65-85 degree zone; lumen output, minimum 70% of bare lamp lumens; light output above horizontal, maximum 20%.

LAMP: F40, T-12 Rapid start fluorescent.

BALLAST: HPF, Rapid start, as specified.

TYPE "B"

Same as above except shall have an 8' channel, two F40 lamps in tandem, two refractor enclosures in tandem, and one two-lamp ballast.



TYPE 'A'

HOUSING: Wireway channel, nominal 4' long of minimum 20 gage steel; shall support lampholders (on minimum 18 gage brackets), ballast, and reflector cover; shall include knockouts for box mounting and continuous row mounting.

FACIA: Curved extruded aluminum; minimum 0.10-inch thick; supported on minimum 18 gage brackets; no screws or fastners visible from normal viewing angles; mounted in continuous rows, facia shall extend one-inch beyond the housing at the row ends; provide facia configurated aluminum channel end covers at ends of fixture rows.

FINISHES: Housing and reflector cover - 89% minimum reflectance baked white enamel; Facia - back and channel end covers, 89% minimum reflectance white enamel; Facia - front, manufacturers standard white.

LAMPS: Two F40, T-12, rapid start fluorescent

BALLAST: Two lamp, high power factor, rapid start voltage as specified.

TYPE 'B'

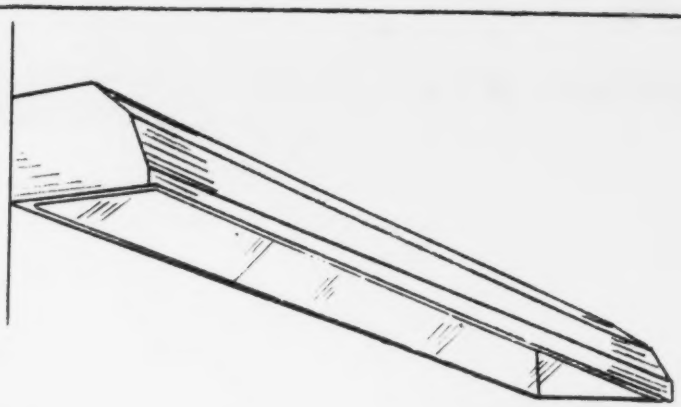
SAME AS ABOVE EXCEPT WITH SINGLE F40 T12 LAMP, DEPTH NOT TO EXCEED 7 1/2 INCHES.

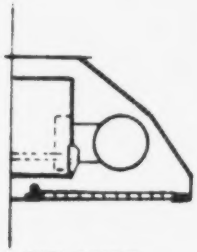
TYPE 'C'

SAME CONSTRUCTION AS ABOVE EXCEPT WITH 2F46-1500MA LAMPS, LENGTH 8'-0" AND DEPTH NOT TO EXCEED 11 INCHES.

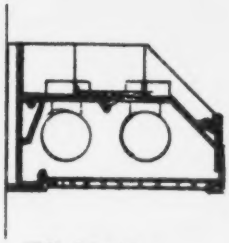
WALL MOUNTED DIRECT/INDIRECT FLUORESCENT FIXTURE

E
F-10





ONE LIGHT
TYPE 'A'



TWO LIGHT
TYPE 'B'

HOUSING: 20 GAUGE COLD ROLLED DIE FORMED STEEL; ALL CORNERS ARE WELDED GROUND SMOOTH AND LIGHT TIGHT.

REFLECTOR: COLD ROLLED STEEL, PHOSPHATE UNDERCOAT AND FINISHED IN BAKED WHITE ENAMEL.

FIXTURE FINISH: ALL FIXTURE COMPONENTS SHALL BE COMPLETELY PROTECTED AGAINST RUST AND DISCOLORATION BY A PHOSPHATE UNDERCOAT AND FINISHED IN BAKED ALUMINUM PAINT.

WIRING: FIXTURE SHALL BE WIRED WITH RAPID START CBM.HPF BALLASTS. ALL BALLASTS SHALL BE PROTECTED INTERNALLY BY A THERMAL NON-SETTING DEVICE.

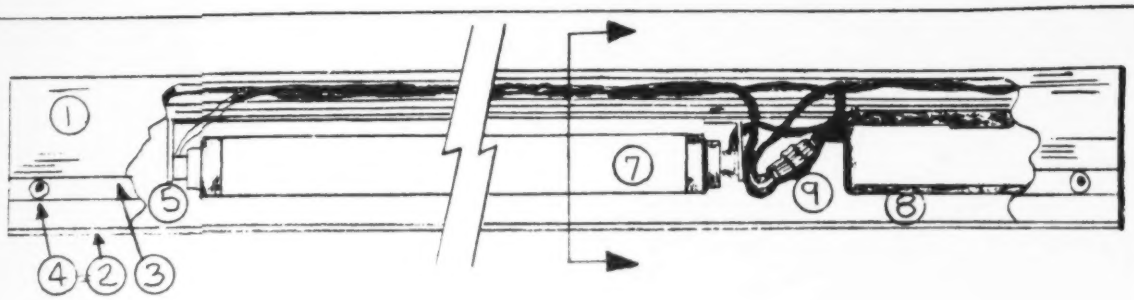
DIFFUSER: SHALL BE ACRYLIC PLASTIC 1/8" MINIMUM THICKNESS.

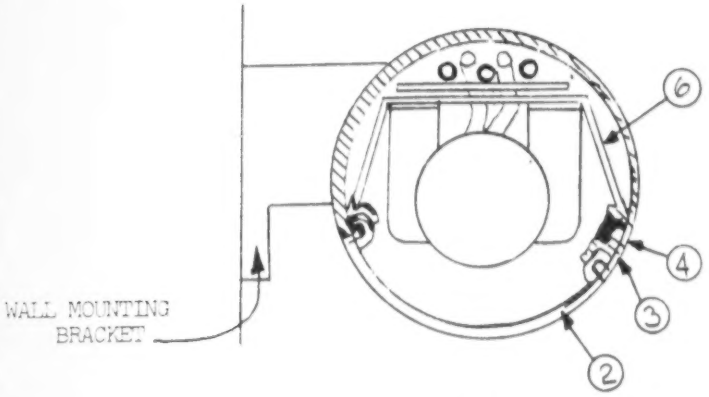
LAMP: 1 OR 2 F40-T12 RAPID START.

BALLAST: H.P.F., SINGLE OR TWO LAMP, RAPID START, 120V.

WALL MOUNTED FLUORESCENT FIXTURE

E
F-11

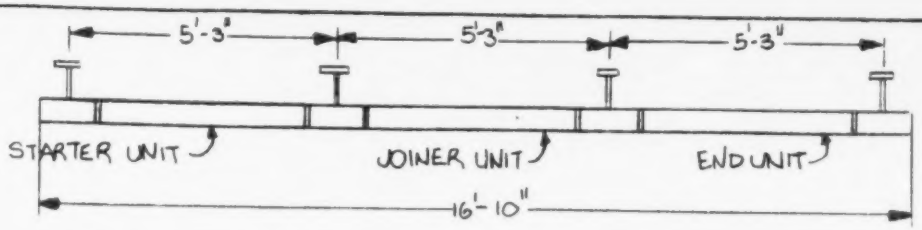


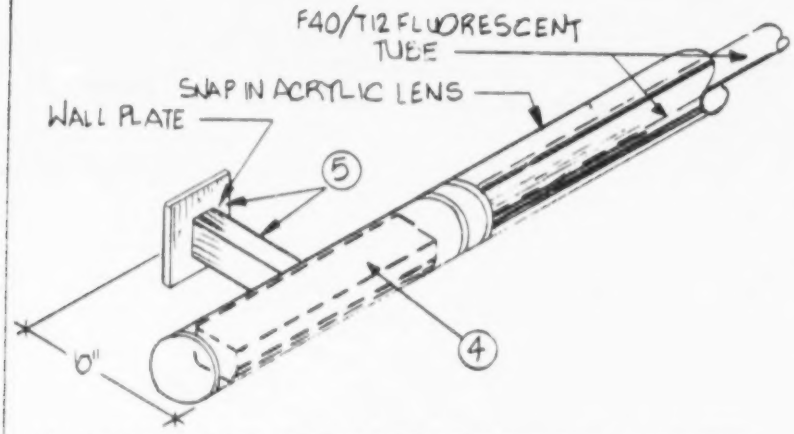


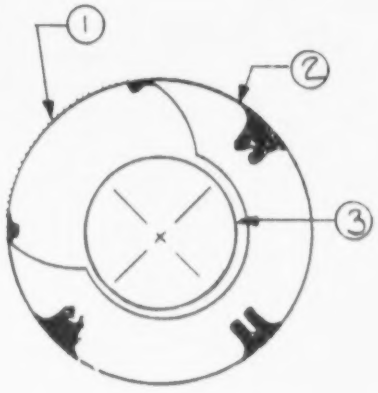
1) HOUSING: EXTRUDED ALUMINUM (6063-TS ALLOY) 1/8 INCH THICK WITH ADEQUATE STRENGTH TO PROVIDE HAND RAIL SUPPORT.
2) LENS: EXTRUDED 100% VIRGIN ACRYLIC PLASTIC, WHITE TRANSLUCENT. LENS IS DESIGNED WITH A CONTINUOUS HINGE.
3) LENS RETAINER: EXTRUDED ALUMINUM 1/8 INCH THICK. DESIGNED TO BE CONTINUOUS THE FULL LENGTH OF EACH LENS SECTION.
4) HARDWARE: VANDAL RESISTANT STAINLESS STEEL FASTENERS THAT ARE FLUSH WITH HOUSING.
5) LAMPHOLDER: PROVIDED WITH SPRING LOAD CONTACTS, DESIGNED FOR F40/T12 LAMPS.
6) REFLECTOR: SPECULAR ALZAK.
7) LAMPS: F40 T12 FLUORESCENT.
8) BALLAST: TYPE HPF, RAPID START 120V OPERATION.
9) WIRING: ALL SECTIONS PREWIRED FOR EACH INSTALLATION, MATING CONNECTORS BETWEEN BALLAST AND LAMP FOR SERVICING.
10) FINISH: CLEAR ANODIZED OR SATIN ALUMINUM

E
F-12

LIGHTED HANDRAIL

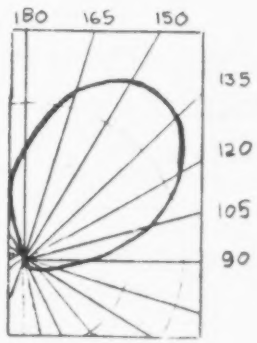






CROSS SECTION
N.T.S.

1) EXTRUDED CLEAR ACRYLIC LENS WITH EXTERNAL SERRATIONS.
2) EXTRUDED ALUMINUM CYLINDER 3.25" DIAMETER X .085 MINIMUM WALL THICKNESS, FINISHED IN HIGHLY POLISHED ALUMINUM AND PROTECTED BY BAKED CLEAR LACQUER.
3) F40T12/RS LAMP FOR 4 FEET CYLINDER.
4) FLUORESCENT BALLAST WITH HEAT DISSIPATION PLATE RAPID START H.P.F. CBM/ETL CERTIFIED 120 VOLT BALLAST.
5) EXTRUDED ALUMINUM EXTENSION ARM AND WALL BOX PLATE MINIMUM 0.85 THICKNESS.



CANDLE POWER DISTRIBUTION

LIGHTED HANDRAIL

Type A

Surface Wall Mounted Fluorescent Lighting Fixture Germ-Killing Type; Length 18 inches.

Construction: Fixture housing of 20-gauge steel with welded end plates; Alzak aluminum reflector; permanent specular finish for maximum reflectivity.

Lamp: 15 Watt, Germicidal.

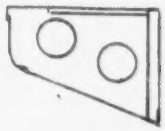
Ballast: Pre-heat with starter. 120 volts.

Note: Use where room height is 11'-0" or more. Use Louvered type fixture when room height is less than 11'-0". Minimum mounting height 7'-6" A.F.F.

Type B: Same as Type A except 36 in. long with 30 watt lamp and matching ballast.

FLUORESCENT GERMICIDAL LIGHTING FIXTURE

E
F-14



TYPE 'A'

HOUSING: CLOSED TOP AND BACK OF NOT LESS THAN 0.035-INCH THICK STEEL OR 20 B&S GAGE ALUMINUM' APPROPRIATE KNOCKOUTS FOR OUTLETS BOX MOUNTING AND ADDITIONAL WALL ATTACHMENT SUPPORTS; END PLATES-CAST ALUMINUM.

REFLECTOR: NOT LESS THAN 0.029-INCH THICK STEEL OR 18 B&S GAGE ALUMINUM; FOR ACCESS TO BALLAST AND WIRING.

FINISHES: HOUSING-SATIN ALUMINUM; OR BAKED WHITE ENAMEL OVER CORROSION RESISTANT PRIMER; REFLECTOR-HIGH REFLECTANCE BAKED WHITE ENAMEL OVER CORROSION RESISTANT PRIMER.

ENCLOSURE: 100% VIRGIN ACRYLIC PLASTIC; WHITE RIBBED WRAP-AROUND DIFFUSER, OR WHITE DIFFUSE FRONT PANEL AND CLEAR PRISMATIC OR RIBBED BOTTOM LENS PANEL; PRINCIPAL LIGHT COMPONENT-DOWNWARD; HINGED OR REMOVABLE WITHOUT TOOLS, WITH LIGHT-TIGHT CLOSURE AT EDGES.

LAMPS: TWO F20, T12 20-WATT TRIGGER START FLUORESCENT.

BALLASTS: TWO LAMP, HIGH POWER FACTOR, FOR TRIGGER START LAMP OPERATION.

TYPE B

SAME AS ABOVE EXCEPT NOMINAL 36" LONG, OPERATING TWO, F30, T-12 RAPID START LAMPS FROM RAPID START TWO LAMP BALLAST.

TYPE C

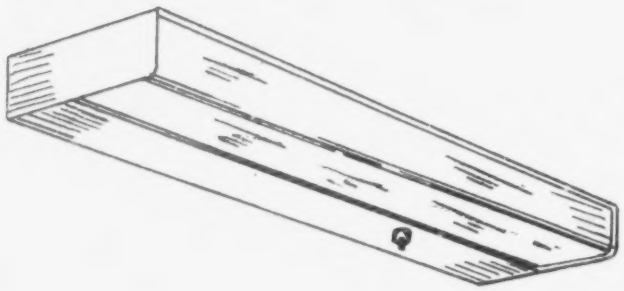
SAME AS ABOVE EXCEPT NOMINAL 48" LONG, OPERATING ONE, F40, T-12 RAPID START LAMP FROM A RAPID START ONE LAMP BALLAST.

TYPE D

SAME AS ABOVE EXCEPT NOMINAL 48" LONG, OPERATING TWO, F40, T-12 RAPID START LAMPS FROM A RAPID START TWO LAMP BALLAST.

WALL BRACKET. 2-LAMP FLUORESCENT LIGHTING FIXTURE WITH LIGHT CONTROLLING PLASTIC ENCLOSURE NOMINAL 25-INCHES LONG

E
F-15



HOUSING: NOMINAL 18" LX5"Dx1½"H; MINIMUM 20 GAGE STEEL: WIREWAY AND BALLAST COMPARTMENT COVER, MINIMUM 22 GAGE; END KNOCKOUTS FOR CONTINUOUS ROW MOUNTING; LIP TO RETAIN DIFFUSER AND PREVENT LIGHT LEAKAGE.

DIFFUSER: WHITE, DIFFUSE ACRYLIC; SNAP-IN MOUNTING TO BODY.

FINISH: BAKED WHITE ENAMEL. DIFFUSER: TRANSLUCENT WHITE.

LAMP: 1-F15T8, PREHEAT FLUORESCENT.

BALLAST: PREHEAT, LPF.

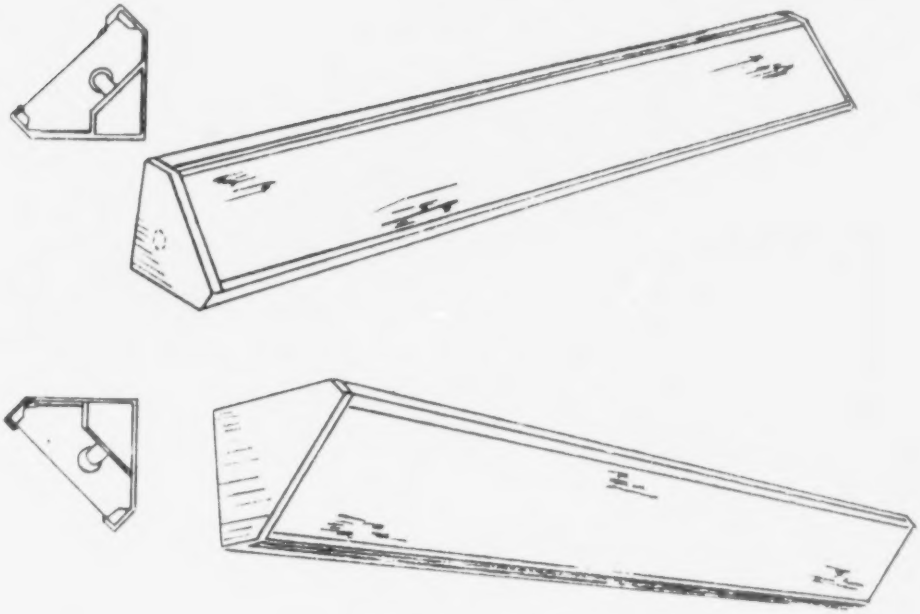
STARTER: ACCESSABLE FROM LAMP COMPARTMENT.

SWITCH: (WHEN REQUIRED) TOGGLE OR PUSH TYPE.

SAME AS ABOVE EXCEPT NOMINAL $\frac{\text{TYPE B}}{36"}$ LONG AND OPERATING TWO LAMPS IN TANDEM.

UNDER CABINET LIGHT

E
F-16



FIXTURE SHALL HAVE TRIANGULAR SECTION FOR DUAL WALL MOUNTING WITH LENS PRODUCING MAIN LIGHT COMPONENT DIRECTED AT APPROXIMATELY 45 DEGREES FROM NADIR OR 135 DEGREES FROM NADIR.

HOUSING: NOT LESS THAN .035 INC. THICK STEEL.

FINISH: HIGH REFLECTANCE BAKED WHITE ENAMEL OR ACRYLIC BASE PAINT OVER CORROSION RESISTANT PRIMER.

LENS: LOW BRIGHTNESS ACRYLIC PRISMATIC WITH APPROXIMATELY 45 DEGREES x 45 DEGREES SHIELDING. SMALL AUXILIARY PRISMATIC ACRYLIC LENS FOR DIRECT UP (OR DOWN) LIGHTING.

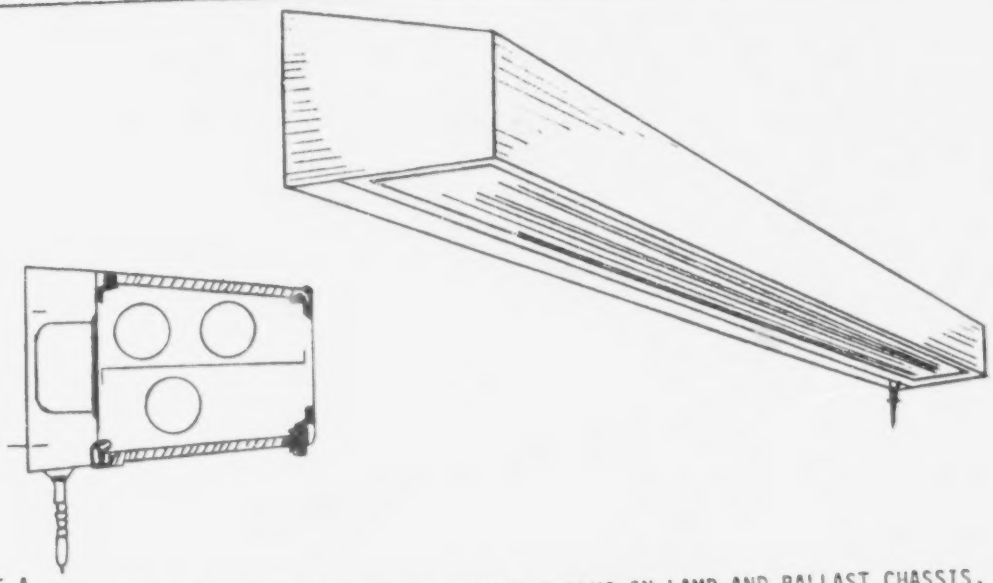
LAMPS: ONE, F40, T-12, RAPID START.

BALLAST: ONE LAMP, HIGH POWER FACTOR.

FIXTURE SHALL BE DESIGNED FOR SINGLE OR CONTINUOUS ROW MOUNTING.

COMBINATION COVE OR DOWNLIGHT

E
F-17



TYPE A SHALL CONSIST OF A BASIC HOUSING WITH REMOVABLE PLUG-IN LAMP AND BALLAST CHASSIS, OR A WIRED WALL MOUNTING BRACKET SUPPORTING A PLUG-IN FIXTURE.

HOUSING: NOMINAL 4' LONG OF EXTRUDED OR DIE CAST ALUMINUM; SHALL SUPPORT WIREWAY AND LAMPHOLDER CHASSIS; HAVE SOLID METAL FRONT PANEL, AND TOP AND BOTTOM LENS OPENINGS; SHALL HINGE OPEN FOR RELAMPING AND SERVICE.
WIREWAY CHASSIS: STEEL MINIMUM 0.035" THICK, OR EXTRUDED ALUMINUM; SHALL SUPPORT LAMPHOLDERS, BALLASTS AND REFLECTOR.
REFLECTOR: (WHEN NOT PART OF HOUSING) STEEL MINIMUM 0.029" THICK OR ALUMINUM MINIMUM 0.040" THICK; SHALL FORM LIGHT SEALING BARRIER BETWEEN UPPER AND LOWER LAMP COMPARTMENTS.
LENSES: BOTTOM-CLEAR 100% VIRGIN ACRYLIC PLASTIC WITH RIBBED OR PRISMATIC LENS CONFIGURATIONS; AT THE INDICATED MOUNTING HEIGHT, SHALL FUNCTION WITH THE REFLECTOR TO PROVIDE MINIMUM OF 30 FOOTCANDLES ON PATIENTS' READING TASK.
TOP- GLASS OR 100% VIRGIN ACRYLIC PLASTIC; PLANE, RIBBED, OR PRISMATIC; NOMINAL 1/8" THICK; PROJECT LIGHT OUTWARD TOWARD THE CEILING FOR GENERAL ILLUMINATION. LENSES SHALL BE SECURED IN HOUSING WITH CLIPS OR HINGED CLAMPING FRAME IN A LIGHT TIGHT MANNER.
FINISHES: EXTERIOR- NATURAL ANODIZED ALUMINUM OR BAKED WHITE ENAMEL; INTERIOR- MINIMUM 85% REFLECTANCE BAKED WHITE ENAMEL.
LAMPS: THREE F 40, T-12, RAPID START FLUORESCENT.
ELECTRICAL REQUIREMENTS: FOUR POSITION PULL-CORD SWITCH PROVIDING UP, DOWN, UP-DOWN, AND OFF FUNCTIONS; SINGLE-LAMP HPF BALLAST, FED THROUGH PULL-CORD SWITCH FOR DOWNLIGHT CONTROL; TWO-LAMP HPF BALLAST, FED THROUGH PULL-CORD SWITCH FOR UP-LIGHT CONTROL; PLUG FOR DISCONNECTING POWER WHEN REMOVING WIREWAY CHASSIS (OR FIXTURE) FOR SERVICING; PLUG-IN ASSEMBLY SHALL BE REMOVABLE WITHOUT THE USE OF SPECIAL TOOLS OTHER THAN SCREWDRIVER OR PLIERS.

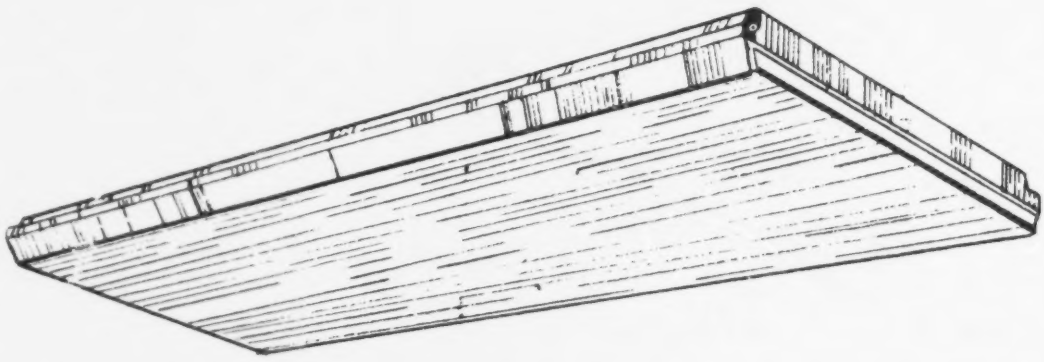
TYPE 'B' SHALL BE SAME AS ABOVE EXCEPT UPLIGHT SHALL BE CONTROLLED FROM EXTERNAL SWITCH (FOR GENERAL ROOM LIGHTING).

TYPE 'C' SHALL BE SAME AS TYPE A, EXCEPT WITH TWO UPLIGHTS AND TWO DOWNLIGHTS.

TYPE 'D' SHALL BE SAME AS TYPE 'C.' UPLIGHT SHALL BE CONTROLLED FROM EXTERNAL SWITCH (FOR GENERAL ROOM LIGHTING).

E
F-18

WALL MOUNTED FLUORESCENT BEDLIGHT



TWO-LAMP SURFACE MOUNTING FLOURESCENT FIXTURE: NOMINAL 4' LONG AND MIN. 11½" WIDE BY MIN. 3" DEEP.

HOUSING: STEEL MIN. 0.035" THICK; KNOCKOUTS AND HARDWARE FOR SURFACE MOUNTING (AT 4 POINTS MIN.); TOP RAISED A MINIMUM OF 3/16" AT NOT LESS THAN FOUR (4) POINTS FOR AIR SPACE WHEN SURFACE MOUNTED; WIRING AND BALLAST ACCESSIBLE FROM BELOW; SEPARATE CAPTIVE NON-TURNING STUDS FOR BALLAST MOUNTING AND FIXTURE GROUNDING; RIGID LAMPHOLDER SUPPORT; DECORATIVE END COVER PLATE, REMOVABLE OR WITH HIDDEN KNOCKOUTS FOR CONTINUOUS ROW ALIGNMENT AND THROUGH WIRING.

REFLECTOR: COMBINATION HOUSING AND WIREWAY COVER; MIN. 0.029" THICK STEEL OR 0.040" THICK ALUMINUM; SECURED BY MIN. OF TWO CAPTIVE SCREW DEVICES.

REFRACTOR ENCLOSURE: ONE-PIECE MOLDED CLEAR 100% ACRYLIC PLASTIC WITH PATTERNS OF PRISMATIC LENS CONFIGURATIONS ON BOTTOM, SIDE AND END SURFACES; READILY REMOVABLE AND HINGED FROM EITHER SIDE; AVERAGE BRIGHTNESS WITH 3100 LUMEN LAMPS A MAX. OF 550 FOOTLAMBERTS CROSSWISE AND 590 FOOTLAMBERTS ENDWISE IN THE 65 - 85 DEGREES ZONE; LUMEN OUTPUT NOT LESS THAN 65% OF BARE LAMP LUMENS; MINIMUM OF 87% OF LIGHT OUTPUT BELOW HORIZONTAL.

METAL FINISH: BAKED ENAMEL OVER CORROSION RESISTANT PRIMER: HOUSING AND REFLECTOR - WHITE; INTERIOR REFLECTING SURFACES - MINIMUM 85% REFLECTANCE.

LAMPS: TWO, **F40** , T-12 RAPID START FLUORESCENT.

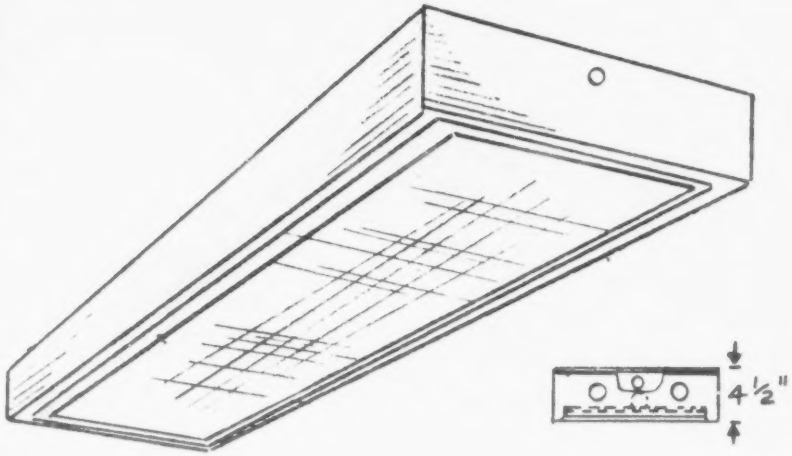
BALLAST: TWO-LAMP, HPF, RAPID START AS SPECIFIED.

TYPE '**B**' SAME REQUIREMENTS AS ABOVE EXCEPT MIN. 15½" WIDE, OPERATES FOUR (4) LAMPS AND HAS TWO TWO-LAMP BALLASTS. AVERAGE BRIGHTNESS LIMITS - MAX. 690 FOOTLAMBERTS CROSSWISE AND 890 FOOTLAMBERTS ENDWISE; LUMEN OUTPUT MIN. 60% OF BARE LAMP LUMENS; MIN. 90% OF LIGHT OUTPUT BELOW HORIZONTAL. INNER LAMPS ON ONE BALLAST, OUTER LAMPS ON ANOTHER.

TYPE '**C**': SAME CONSTRUCTION AS TYPE 'A' EXCEPT SHALL OPERATE THREE (3) LAMPS FROM ONE SINGLE-LAMP BALLAST AND TWO-LAMP BALLAST OR AS OTHERWISE SPECIFIED.

SURFACE MOUNTED **FLUORESCENT FIXTURE**

E
F-19



TYPE A

SURFACE MOUNTED, 2-LAMP FLUORESCENT LIGHTING FIXTURE WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 1' x 4' IN SIZE AND APPROXIMATELY 4½-INCHES DEEP

HOUSING: Steel a minimum of 0.035-inch thick; appropriate knockouts on top for conduit connections and direct screw mounting to the ceiling; knockouts on ends where required for continuous row mounting; wiring and ballast accessible from below; support clips provided for wiring; separate captive non-turning stud for fixture grounding.

REFLECTOR: Housing, wireway cover, separable reflector, or combination thereof; wireway cover or separable reflector minimum of 0.029-inch thick steel, or 0.040-inch thick aluminum.

LENS DOOR: Steel minimum of 0.035-inch thick or equivalent strength extruded aluminum; lens held in expansion compensating manner by clips or clamping frame; separable or cadmium plated steel hinges; inconspicuous finger-operated catches; integral light trap; lens replaceable without special tools.

FINISHES: Housing and door-baked white enamel; reflecting surfaces-minimum of 85% reflectance baked white enamel.

LENS: Clear 100% virgin acrylic or crystal glass; smooth one side, uniform pattern of cones or hexagonal pyramidal prisms on the other; a minimum of 1/8-inch average thickness (prism point and base); glass to be annealed; average brightness with 3100 lumen lamps maximum of 655 fL's crosswise and 980 fL's endwise in 65° to 85° zone; fixture lumen output minimum of 54% of bare lamp lumens.

LAMPS: Two, F40 , T-12, rapid start fluorescent.

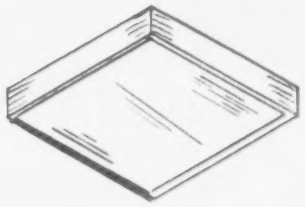
BALLAST: Two lamp, HPF, rapid start type as specified.

TYPE B

SAME CONSTRUCTION AS FIXTURE TYPE A EXCEPT WITH ONE LAMP ONLY, AND ONE SINGLE LAMP BALLAST.

E
F-20

SURFACE MOUNTED 1'x4' FLUORESCENT FIXTURE



HOUSING: STEEL A MINIMUM OF 0.035 INCH THICK: APPROPRIATE KNOCKOUTS ON TOP FOR CONDUIT CONNECTIONS AND DIRECT SCREW MOUNTING TO THE CEILING: KNOCKOUTS ON ENDS WHERE REQUIRED FOR CONTINUOUS ROW MOUNTING: WIRING AND BALLAST ACCESSIBLE FROM BELOW: SUPPORT CLIPS PROVIDED FOR WIRING: SEPARATE CAPTIVE NON-TURNING STUD FOR FIXTURE GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR, OR COMBINATION THEREOF; WIREWAY COVER OR SEPARABLE REFLECTOR MINIMUM OF 0.029-INCH THICK STEEL, OR 0.040-INCH THICK ALUMINUM.

LENS DOOR: STEEL MINIMUM OF 0.035-INCH THICK OR EQUIVALENT STRENGTH EXTRUDED ALUMINUM; LENS HELD IN EXPANSION COMPENSATING MANNER BY CLIPS OR CLAMPING FRAME; SEPARABLE STAINLESS OR CADMIUM PLATED STEEL HINGES; INCONSPICUOUS FINGER-OPERATED CATCHES; INTEGRAL LIGHT TRAP; LENS REPLACEABLE WITHOUT SPECIAL TOOLS.

FINISHES: HOUSING AND DOOR-BAKED WHITE ENAMEL; REFLECTING SURFACES-MINIMUM OF 85% BAKED WHITE ENAMEL.

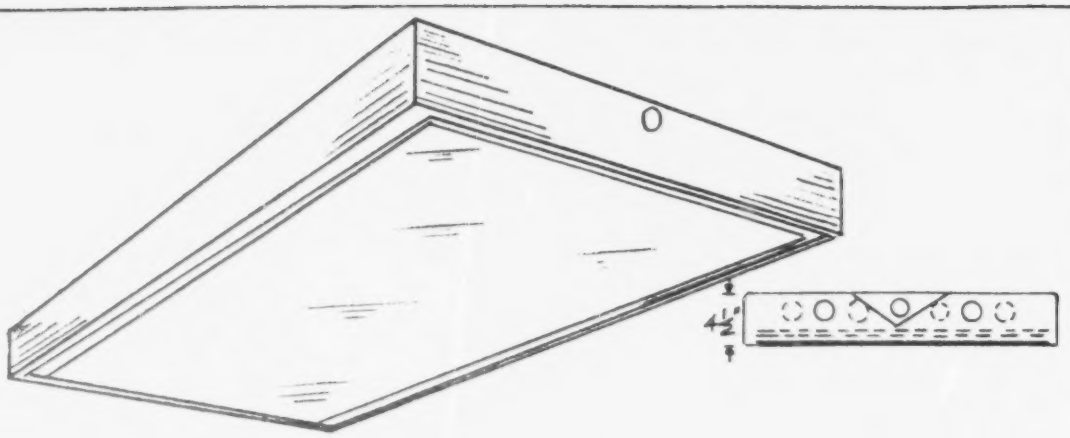
LENS: CLEAR 100% VIRGIN ACRYLIC; SMOOTH ONE SIDE, UNIFORM PATTERN OF CONES OR HEXAGONAL PYROMIDAL PRISMS ON THE OTHER; A MINIMUM OF 1/8-INCH AVERAGE THICKNESS (PRISM POINT AND BASE); FIXTURE LUMEN OUTPUT MINIMUM OF 69% OF BARE LAMP LUMENS.

LAMPS: TWO F40 U/6 RAPID START FLUORESCENT.

BALLAST: TWO LAMP, HPF, RAPID START TYPE AS SPECIFIED.

2 x 2 SURFACE FLUORESCENT, APPROXIMATELY 4" DEEP.

E
F-21



SURFACE MOUNTED, 2-LAMP FLUORESCENT LIGHTING FIXTURE WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 2' x 4' IN SIZE AND APPROXIMATELY 4½-INCHES DEEP.

HOUSING: Steel a minimum of 0.035-inch thick; appropriate knockouts on top for conduit connections and direct screw mounting to the ceiling; knockouts on ends where required for continuous row mounting; wiring and ballast accessible from below; support clips provided for wiring; separate captive non-turning stud for fixture grounding.

REFLECTOR: Housing, wireway cover, separable reflector, or combination thereof; wireway cover or separable reflector minimum of 0.029-inch thick steel, or 0.040-inch thick aluminum.

LENS DOOR: Steel minimum of 0.035-inch thick or equivalent strength extruded aluminum; lens held in expansion compensating manner by clips or clamping frame; separable stainless or cadmium plated steel hinges; inconspicuous finger-operated catches; integral light trap; lens replaceable without special tools.

FINISHES: Housing and door-baked white enamel; reflecting surfaces-minimum of 85% reflectance baked white enamel.

LENS: Clear 100% virgin acrylic or crystal glass; smooth one side, uniform pattern of cones or hexagonal pyramidal prisms on the other; a minimum of 1/8-inch average thickness (prism point and base); glass to be annealed; average brightness with 3100 lumen lamps maximum of 510 crosswise and 600 endwise in the 60°-85° zone; fixture lumen output minimum of 69% of bare lamp lumens.

LAMPS: Two, F40 rapid start fluorescent.

BALLAST: Two lamp, HPF, rapid start type as specified.

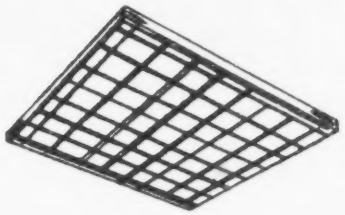
TYPE B: SAME CONSTRUCTION AS ABOVE EXCEPT WITH FOUR LAMPS, TWO TWO-LAMP BALLASTS, AVERAGE BRIGHTNESS LIMITATIONS - MAXIMUM 900 CROSSWISE AND 1090 ENDWISE, AND LUMEN OUTPUT - MINIMUM 62% OF BARE LAMP LUMENS.

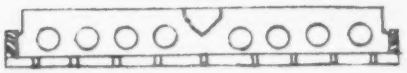
TYPE C: SAME CONSTRUCTION AS TYPE 'B' EXCEPT WITH THREE LAMPS - WITH ONE AND TWO-LAMP BALLASTS.

TYPE D: SAME CONSTRUCTION AS TYPE 'B' EXCEPT WITH SIX LAMPS - WITH THREE TWO-LAMP BALLASTS.

E
F-22

SURFACE MOUNTED 2'X4' FLUORSCENT





HOUSING: STEEL A MINIMUM OF 0.035" THICK; APPROPRIATE KNOCKOUTS ON TAP FOR CONDUIT CONNECTIONS AND DIRECT SCREW MOUNTING TO THE CEILING; SUPPORT CLIPS PROVIDED FOR WIRING; SEPARATE CAPTIVE NON-TURNING STUD FOR FIXTURE GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR, OR COMBINATION THEREOF; WIREWAY COVER OR SEPARABLE REFLECTOR MINIMUM OF 0.029" THICK STEEL, OR 0.040" THICK ALUMINUM.

LENS: HELD IN EXPANSION COMPENSATING MANNER BY CLIPS OR CLAMPING FRAME; SEPARABLE STAINLESS OR CADMIUM PLATED STEEL HINGES; INCONSPICUOUS FINGER-OPERATED CATCHES; INTEGRAL LIGHT TRAP; LENS REPLACEABLE WITHOUT SPECIAL TOOLS.

FINISH : HOUSING BAKED WHITE ENAMEL; REFLECTING SURFACES-MINIMUM OF 85% REFLECTANCE.

MATTE WHITE DIFFUSER FRAMED IN SATIN FINISHED GENUINE WALNUT AND SUPPORTED BY BIRCH GRID, PATTERNED AS INDICATED. ASSEMBLY HELD IN PLACE FROM EITHER SIDE WITHOUT USE OF SPECIAL TOOLS FOR RELAMPING.

LAMPS: SIX- F40, 48 INCH, T-12, RAPID START FLUORESCENT.

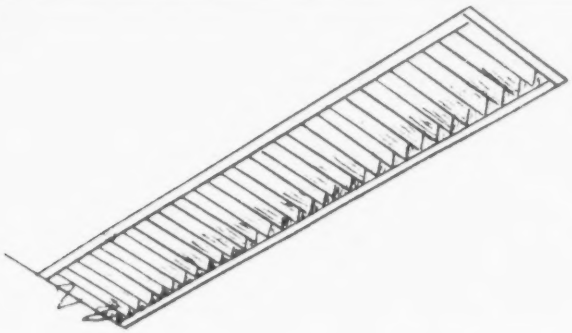
BALLAST: TWO LAMP, HPF, RAPID START TYPE AS SPECIFIED.

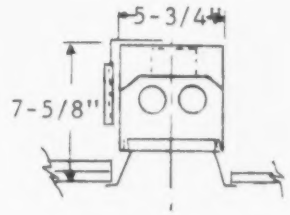
TYPE B

SAME CONSTRUCTION AS FIXTURE TYPE A EXCEPT WITH EIGHT LAMPS, FOUR TWO-LAMP BALLASTS.

E
F-23

SURFACE MOUNTED 4'x4' FLUORESCENT





RECESSED, 2 LAMP FLUORESCENT LIGHTING TROFFER WITH MATTE WHITE CROSS BAFFLES (3/4" HIGH, 45° LENGTHWISE CUTOFF), NOMINAL 6" x 4' IN SIZE AND APPROXIMATELY 7-5/8" DEEP.

HOUSING: SHALL BE DIE-FORMED AND WELDED FROM 20 GAUGE STEEL; APPROXIMATE HARDWARE FOR A MINIMUM OF (4) POINTS OF SUPPORT IN APPLICABLE CEILING SYSTEM, WIRING AND BALLAST ACCESSIBLE FROM BELOW; SUPPORT CLIPS PROVIDED FOR WIRING; SEPARATE CAPTIVE NON-TURNING STUD FOR FIXTURE GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR OR COMBINATION THERE OF; WIREWAY COVER OR SEPARABLE REFLECTOR MINIMUM OF 0.029 INCH THICK STEEL.

EXTRUDED TRIMS: TRIMS SHALL BE EXTRUDED ALUMINUM 1-3/4" HIGH, FORMING AN ANGLE OF 67.5° TO HORIZONTAL. TRIMS SHALL BE HELD IN RIGID ALIGNMENT FOR ROW MOUNTING BY SLIDE-IN SPLICE PLATES.

FINISHES: WHITE ENAMEL HOUSING AND TRIMS, BAKED IN 300°F OVEN ; REFLECTANCE OF REFLECTING SURFACES, 90%. EXTRUDED TRIMS FINISHED SATIN WHITE.

BAFFLE: WHITE ENAMEL CROSS BAFFLE. 3/4" HIGH, 45° CUT OFF.

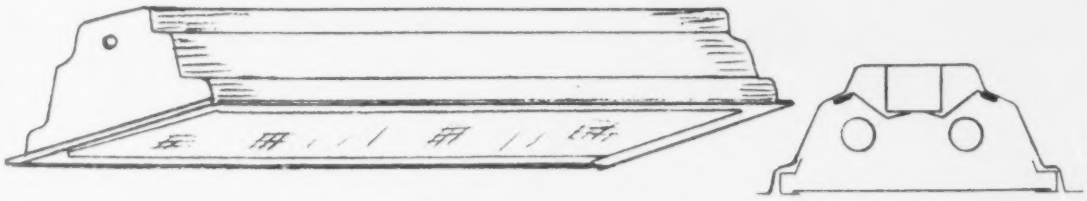
LAMPS: TWO (2), F40 , 48 INCH, T-12, RAPID START FLUORESCENT.

BALLAST: TWO LAMP, HPF, RAPID START TYPE AS SPECIFIED.

TYPE "B": SAME CONSTRUCTION AS ABOVE, EXCEPT 6" x 72" IN SIZE AND FOUR (4), F30 , 36 INCH, T-12 RAPID START FLUORESCENT LAMPS.

RECESSED 2 LAMP - 6" x 4' FIXTURE

E
F-24



RECESSED, 2-LAMP FLUORESCENT LIGHTING TROFFER WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 1' x 4' IN SIZE AND APPROXIMATELY 4½ INCHES DEEP.

HOUSING: STEEL A MINIMUM OF 0.035-INCH THICK; APPROPRIATE HARDWARE FOR A MINIMUM OF (4) POINTS OF SUPPORT IN APPLICABLE CEILING SYSTEM; WIRING AND BALLAST ACCESSIBLE FROM BELOW; SUPPORT CLIPS PROVIDED FOR WIRING; SEPARATE CAPTIVE NON-TURNING STUD FOR FIXTURE GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR, OR COMBINATION THEREOF; WIREWAY COVER OR SEPARABLE REFLECTOR MINIMUM OF 0.029-INCH THICK STEEL.

LENS DOOR AND TRIM FRAME: STEEL MINIMUM OF 0.035-INCH THICK OR EQUIVALENT STRENGTH EXTRUDED ALUMINUM; LENS HELD IN EXPANSION COMPENSATING MANNER BY CLIPS OR CLAMPING FRAME; SEPARABLE STAINLESS OR CADMIUM PLATED STEEL HINGES; INCONSPICUOUS FINGER-OPERATED CATCHES; INTEGRAL LIGHT TRAP; LENS REPLACEABLE WITHOUT SPECIAL TOOLS.

FINISHES: HOUSING, DOOR, AND TRIM FRAME - BAKED WHITE ENAMEL; REFLECTING SURFACES - MINIMUM OF 85% REFLECTANCE BAKED WHITE ENAMEL.

LENS: CLEAR 100% VIRGIN ACRYLIC PLASTIC OR CRYSTAL GLASS; SMOOTH ONE SIDE, UNIFORM PATTERN OF CONES OR HEXAGONAL PYRAMIDAL PRISMS ON THE OTHER; A MINIMUM OF 1/8-INCH AVERAGE THICKNESS (PRISM POINT AND BASE); GLASS TO BE ANNEALED; AVERAGE BRIGHTNESS WITH 3100 LUMEN LAMPS MAXIMUM OF 655 FL'S CROSSWISE AND 980 FL'S ENDWISE IN 65 DEGREE TO 85 DEGREE ZONE; FIXTURE LUMEN OUTPUT MINIMUM OF 60% OF BARE LAMP LUMENS.

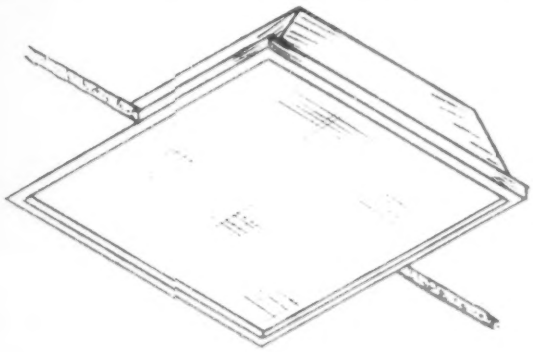
LAMPS: TWO F40 , 40W , T-12, RAPID START FLUORESCENT.

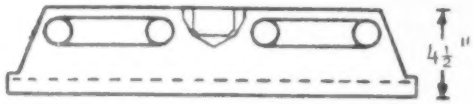
BALLAST: TWO LAMP, HPF, RAPID START TYPE AS SPECIFIED.

TYPE 'B' SAME CONSTRUCTION AS ABOVE EXCEPT WITH ONE LAMP ONLY, AND ONE SINGLE LAMP BALLAST.

RECESSED TWO LAMP FLUORESCENT FIXTURE

E
F-25





RECESSED, 2-LAMP, FLUORESCENT LIGHTING TROFFER WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 2' x 2' IN SIZE AND APPROXIMATELY 4½ INCHES DEEP.

HOUSING: Steel a minimum of 0.035-inch thick; appropriate hardware for a minimum of (4) points of support in applicable ceiling system; wiring and ballast accessible from below; support clips provided for wiring; separate captive non-turning stud for fixture grounding.

REFLECTOR: Housing, wireway cover, separable reflector, or combination thereof; wireway cover or separable reflector minimum of 0.029-inch thick steel or 0.040-inch thick aluminum.

LENS DOOR AND TRIM FRAME: Steel minimum of 0.035-inch thick or equivalent strength extruded aluminum; lens held in expansion compensating manner by clips or clamping of frame; separable stainless or cadmium plated steel hinges; inconspicuous finger-operated catches; integral light trap; lens replaceable without special tools.

FINISHES: Housing, door and trim frame - baked white enamel; reflecting surfaces minimum of 85% reflectance baked white enamel.

LENS: Clear 100% virgin acrylic plastic or crystal glass; smooth one side, uniform pattern of cones or hexagonal pyramidal prisms on the other; a minimum of 1/8-inch average thickness (prism point and base); glass to be annealed; average brightness with 2525 lumen lamps maximum of 733 fL's crosswise and 733 fL's endwise in 65° to 85° zone; fixture lumen output minimum of 64% of bare lamp lumens.

LAMPS: Two - 40 W/U, T-12, rapid start fluorescent.

BALLAST: Two lamp, HPF, rapid start type as specified.

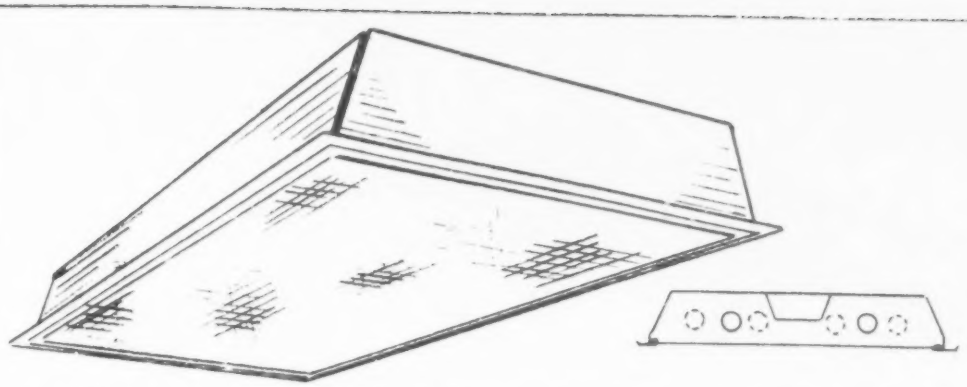
TYPE B

SAME CONSTRUCTION AS ABOVE, EXCEPT WITH ONE LAMP, AVERAGE BRIGHTNESS LIMITATIONS

MAXIMUM 415 fL's CROSSWISE AND 488 fL's ENDWISE, AND LUMEN OUTPUT - MINIMUM 60% OF BARE LAMP LUMENS.

RECESSED 2'x2' 2LAMP FIXTURE

E
F-26



RECESSED, 2-LAMP, FLUORESCENT LIGHTING TROFFER WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 2' x 4' IN SIZE AND APPROXIMATELY 4½ INCHES DEEP.

HOUSING: STEEL A MINIMUM OF 0.035-INCHES THICK; APPROPRIATE HARDWARE FOR A MINIMUM OF (4) POINTS OF SUPPORT IN APPLICABLE CEILING SYSTEM; WIRING AND BALLAST ACCESSIBLE FROM BELOW; SUPPORT CLIPS PROVIDED FOR WIRING; SEPARATE CAPTIVE NON-TURNING STUD FOR FIXTURE GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR, OR COMBINATION THEREOF; WIREWAY COVER OF SEPARABLE REFLECTOR MINIMUM OF 0.029-INCH THICK STEEL OR 0.040-INCH THICK ALUMINUM.

LENS DOOR AND TRIM FRAME: STEEL MINIMUM OF 0.035-INCH THICK OR EQUIVALENT STRENGTH EXTRUDED ALUMINUM; LENS HELD IN EXPANSION COMPENSATING MANNER BY CLIPS OR CLAMPING OF FRAME; SEPARABLE STAINLESS OR CADMIUM PLATED STEEL HINGES; INCONSPICUOUS FINGER-OPERATED CATCHES; INTEGRAL LIGHT TRAP; LENS REPLACEABLE WITHOUT SPECIAL TOOLS.

FINISHES: HOUSING, DOOR AND TRIM FRAME - BAKED WHITE ENAMEL; REFLECTING SURFACES MINIMUM OF 85% REFLECTANCE BAKED WHITE ENAMEL.

LENS: CLEAR 100% VIRGIN ACRYLIC PLASTIC OR CRYSTAL GLASS; SMOOTH ONE SIDE, UNIFORM PATTERN OF CONES OR HEXAGONAL PYRAMIDAL PRISMS ON THE OTHER; A MINIMUM OF 1/8-INCH AVERAGE THICKNESS (PRISM POINT AND BASE); GLASS TO BE ANNEALED; AVERAGE BRIGHTNESS WITH 3100 LUMEN LAMPS MAXIMUM OF 410 FL'S CROSSWISE AND 420 FL'S ENDWISE IN 65 DEGREE TO 85 DEGREE ZONE; FIXTURE LUMEN OUTPUT MINIMUM OF 70% OF BARE LAMP LUMENS.

LAMPS: TWO, F40, T-12, RAPID START FLUORESCENT.

BALLAST: TWO LAMP, HPF, RAPID START TYPE AS SPECIFIED.

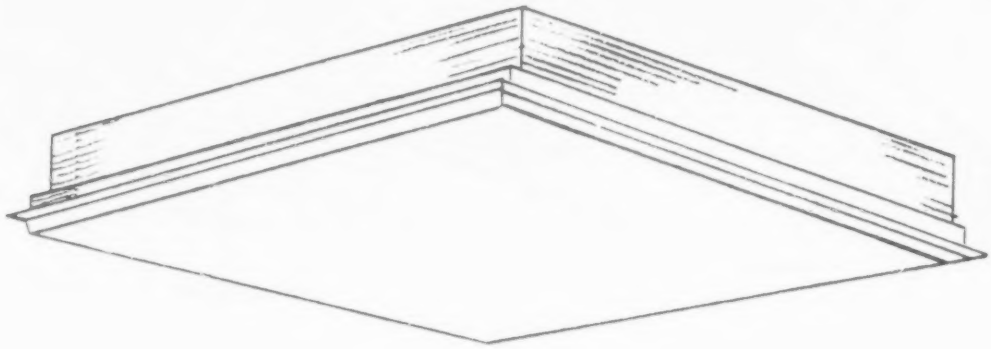
TYPE 'B' SAME CONSTRUCTION AS ABOVE EXCEPT WITH FOUR LAMPS, TWO TWO-LAMP BALLASTS, AVERAGE BRIGHTNESS LIMITATIONS - MAXIMUM 600 FL'S CROSSWISE AND 620 FL'S ENDWISE, AND LUMEN OUTPUT - MINIMUM 64% OF BARE LAMP LUMENS. INNER LAMPS ON ONE BALLAST, OUTER LAMPS ON OTHER BALLAST.

TYPE 'C' SAME CONSTRUCTION AS TYPE 'B' EXCEPT WITH THREE LAMPS - W/ ONE & TWO LAMP BALLASTS

TYPE 'D' SAME CONSTRUCTION AS TYPE 'B' EXCEPT WITH SIX LAMPS- THREE TWO-LAMP BALLASTS.

RECESSED FLOURESCENT FIXTURE

E
F-27



HOUSING: STEEL, MINIMUM 0.035" THICK; HARDWARE FOR MINIMUM OF 4 SUPPORTS IN APPLICABLE CEILING; WIRING AND BALLASTS ACCESSIBLE FROM BELOW; CLIPS FOR WIRING SUPPORT; CAPTIVE WIREWAY STUD FOR GROUNDING.

REFLECTOR: HOUSING, WIREWAY COVER, SEPARABLE REFLECTOR, OR COMBINATION THEREOF; COVER OR REFLECTOR, MINIMUM 0.029" THICK STEEL; OR WIREWAY, SIMPLE TOOL ACCESSIBILITY.

DIFFUSER DOOR: STEEL, MINIMUM 0.047" THICK, OR EQUIVALENT STRENGTH EXTRUDED ALUMINUM INTEGRAL LIGHT TRAP; RETENTION CLIPS OR CLAMPS FOR DIFFUSER RETENTION; SEPARABLE HINGING AND INCONSPICOUS FINGER OPERATED CATCHES; HARDWARE, STAINLESS STEEL OR CADMIUM PLATED; SIMPLE TOOL PANEL REPLACEMENT.

TRIM FRAME: STEEL, MINIMUM 0.035" THICK, OR EXTRUDED ALUMINUM EQUIVALENT; MITERED CORNERS FREE OF LIGHT LEAKS.

FINISHES: HOUSING, DOOR AND TRIM FRAME; BAKED WHITE ENAMEL: REFLECTING SURFACES; MINIMUM 85% REFLECTANCE BAKED WHITE ENAMEL.

DIFFUSER: OPAL WHITE, DROP DISH; ACRYLIC PLASTIC; MINIMUM 0.125" THICK; MINIMUM 70% LIGHT TRANSMISSION.

LAMPS: SIX F40, T-12, RAPID START FLUORESCENT.

BALLASTS: THREE TWO-LAMP, HPF, RAPID START AS SPECIFIED; WIRE FIXTURE SYMMETRICALLY, OUTSIDE TWO LAMPS ON ONE BALLAST AND THE INSIDE TWO LAMPS ON ANOTHER.

TYPE B

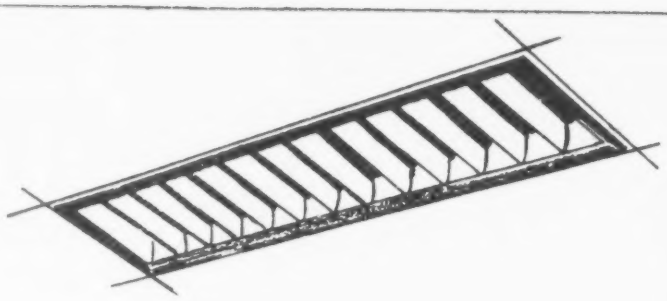
SAME AS ABOVE EXCEPT SHALL HAVE TWO BALLASTS AND FOUR LAMPS.

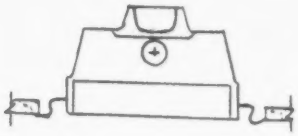
TYPE C

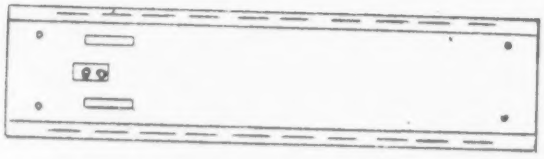
SAME AS ABOVE EXCEPT SHALL HAVE FOUR BALLASTS AND EIGHT LAMPS.

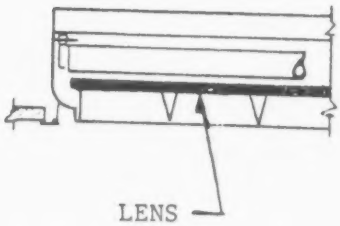
RECESSED 6 LAMP FLUORESCENT FIXTURE

E
F-28









Construction : Housing die formed code gauge steel. Prime cold rolled. Ballast wire-way cover easily removed without tools. Die formed lampholder brackets. Fully [illegible] wiring.

Electrical: HPF, rapid start type ballast. Secured each end by positive mounting studs. Plated lampholder contacts. Pressure lock connections. Electrical components and fixtures, UL approved. Lamp: F40, T-12, rapid start.

Aluminum Energy Cell: Formed of light haze anodized aluminum. Accurate parabolic configuration held in place with interlocking joints. Spring loaded hinge and latch. Black reveal around all sides.

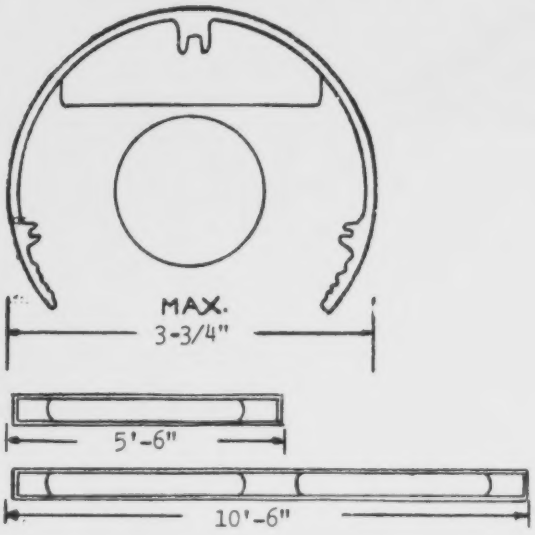
Finish: Painted parts to be cleaned in a multistage process with iron phospahte coatings and rust inhibitor. Electrostatically applied white (86% Reflectance) and black enamel baked 350 degrees F. for maximum durability.

Air Supply: The fixture is designed to adapt to air diffusers. Air diffuser sources must be consulted for complete ordering information. Closure strips are provided when specified for blank units, or where single air diffusers are to be used.

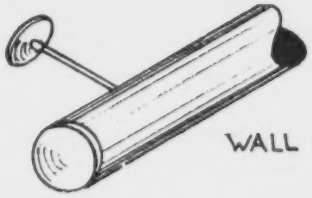
TYPE B: Same as above except shall be two lamps with two-lamp ballast.

E
F-29

RECESSED AIR SUPPLY 1' X 4 FLUORESCENT FIXTURE



CEILING MTD.



WALL MTD.

DESCRIPTION: DECORATIVE CYLINDER LIGHT TO PROVIDE VERSATILE PATTERN, BY USE OF STEM OR HARD CEILING PLATE HANGER KITS. CONNECTORS OF VARIOUS SIZES SUCH AS 3", 3 1/2", 90° ELBOW, TEE CONNECTORS, 45° CONNECTORS SHALL BE USED TO SUIT PATTERN.

CONSTRUCTION: RIGID ONE PIECE HOUSING OF PRECISION EXTRUDED ALUMINUM IN SINGLE OR TANDEM LAMP. FIXTURE ADJUSTED UP TO 355° BY MEANS OF RATCHET IN 15° POSITIVE CLICK ROTATION. EACH FIXTURE FURNISHED WITH STANDARD HANGING OUTLETS AND ANODIZED LAMP REFLECTOR.

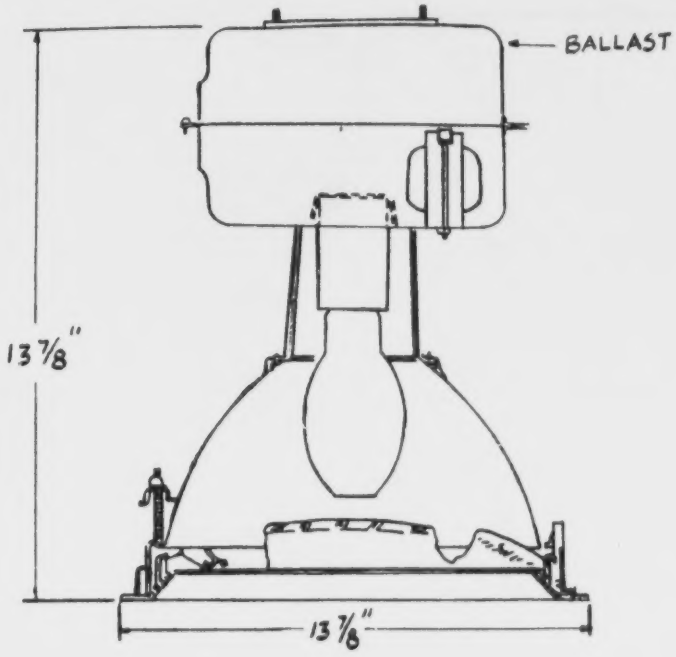
FINISH: HIGH GLOSS BAKED ENAMEL IN POLISH ANODIZED ALUMINUM. END ROTATOR CAP AND HANGING OUTLET SHALL BE CHROME PLATED, SET OFF BY BLACK END PLATES.

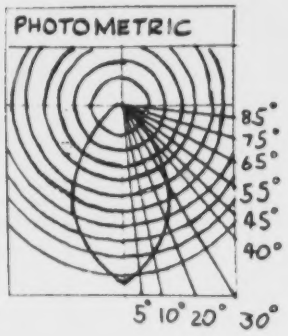
ELECTRICAL: FLUORESCENT BALLAST(S) 120V. HPF R.S. LAMP: F40, T-12. PROVIDE ALL IN ROW WIRING, HANGERS, CONNECTORS, TO PROVIDE PATTERNS AS INDICATED.

INSTALLATION & MOUNTING: FIXTURE SHALL BE SUITABLE FOR WALL OR CEILING MOUNTING BY USE OF 5 1/4" STEM PLATE. PROVIDE NECESSARY HARD CEILING PLATES, JUNCTION BOXES TO SUIT LAYOUT.

DECORATIVE CYLINDRICAL LIGHT

E
F-30





Mechanical - Die cast trim and door assembly with automatic latching device. Trim shall incorporate light sealing vertical baffles.

Reflector - Contoured reflector and concave internal glass lens

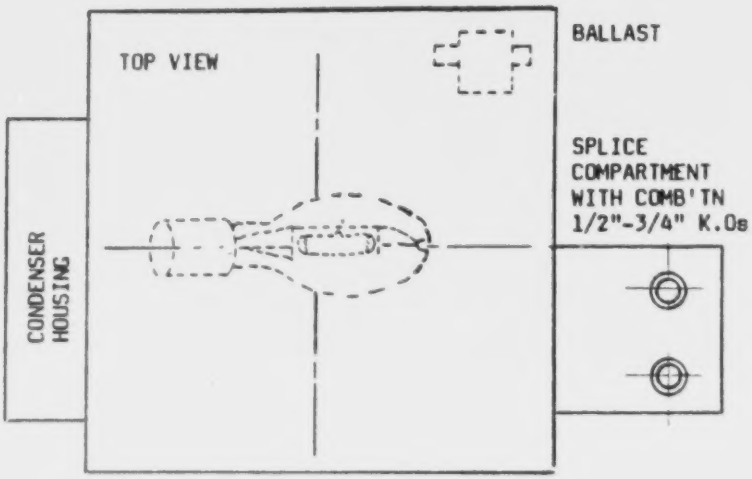
Ballast - Integral ballast assembly, H. P. F.

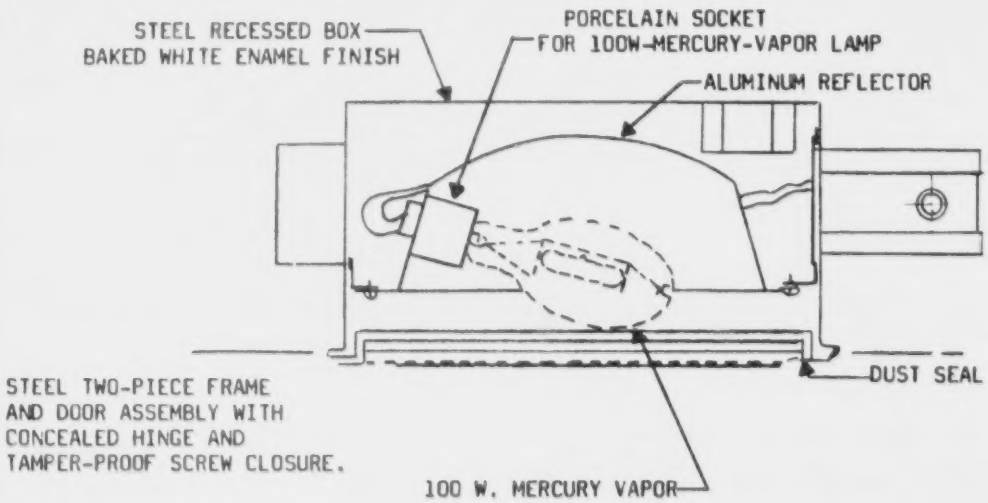
Lamp - 100 W. Mercury vapor unless otherwise noted. Fixture shall be capable of using:

100-300 watts incandescent fixtures - Maximum height: 11 1/4"
100-250 watts mercury vapor fixtures - Maximum height: 13 7/8" to 17 1/2"
70-150 watts high pressure sodium fixtures

RECESSED HID/INCANDESCENT FIXTURE

E
H-1





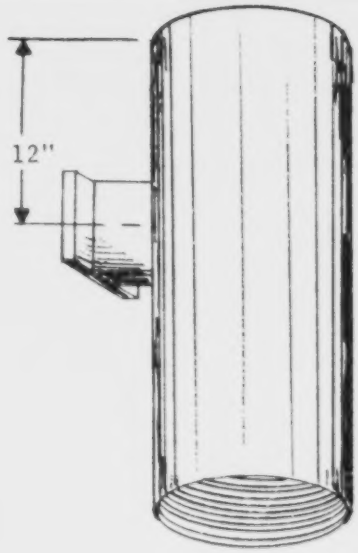
TYPE A: AS ABOVE WITH SYMMETRIC LENS AND TOUCH-LATCH CLOSURE.

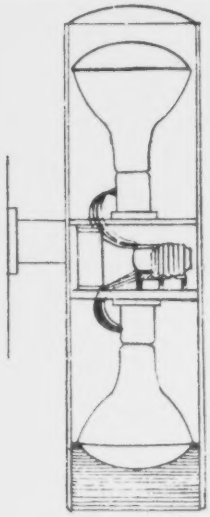
TYPE B: AS ABOVE WITH DROP WHITE DIFFUSER AND TOUCH-LATCH CLOSURE.

TYPE C: AS ABOVE WITH STEPPED PRISMATIC LENS AND TOUCH-LATCH CLOSURE.

RECESSED MERCURY VAPOR

E
H-2





WALL MOUNTED UP AND DOWN BRACKET MERCURY VAPOR CYLINDER WITH BLACK MULTIPLE GROOVE BAFFLE FOR OPERATION WITH REFLECTOR LAMPS.

HOUSING - CYLINDER OF MINIMUM 1/8" EXTRUDED ALUMINUM APPROXIMATELY 25 INCHES HIGH,6" IN DIAMETER WITH INTEGRAL BALLAST MOUNTED IN HOUSING.

BAFFLE - INTERIOR MULTIPLE GROOVE BLACK PHENOLIC LINER EXTENDING FROM LOWER TRIM EDGE TO POINT OF MAXIMUM LAMP DIAMETER.

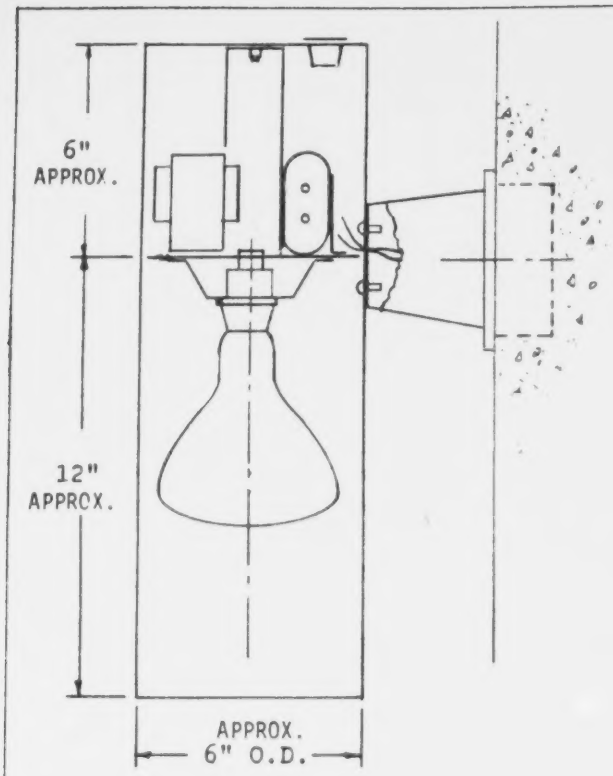
FINISH - HOUSING TO BE SATIN ANODIZED ALUMINUM. MOUNTING ARM AND CANOPY PLATE TO BE ANODIZED MATTE BLACK FINISH.

LAMPS - 2-100 WATT R-40 DELUXE WHITE MERCURY VAPOR REFLECTOR LAMPS.

BALLAST- CONSTANT WATTAGE, HPF.

WALL MOUNTED MERCURY VAPOR UNIT

E
H-3



HOUSING: 0.18 MIN. THICKNESS EXTRUDED ALUMINUM. WITH INTERNAL BALLAST.

FINISH: NATURAL ALUMINUM.

BRACKET: CAST BRACKET AND MOUNTING PLATE; BLACK FINISH.

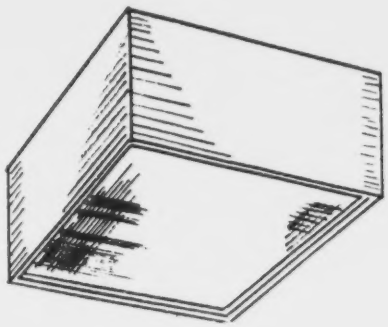
LAMP: 100W R40 MERCURY DELUXE WHITE.

BALLAST: CORE AND COIL CONSTANT WATTAGE

NOTE: 1. SUITABLE FOR OUTDOOR USE.
WHERE INDICATED ON THE DRAWINGS.

MERCURY VAPOR

E
H-4



SURFACE MOUNTED, 1 LAMP, HIGH PRESSURE SODIUM LIGHTING FIXTURE NOMINAL 12 INCHES SQUARE x 6 1/2 INCHES DEEP.

CONSTRUCTION: CAST ALUMINUM WITH INTEGRAL BALLAST COMPARTMENT. FULLY ENCLOSED AND GASKETED. SUITABLE FOR WET LOCATIONS.

HOUSING: CAST ALUMINUM, 0.180" WALL THICKNESS OF CORROSION RESISTANT ALLOY. SATIN ALUMINUM FINISH, ANODIZED

REFLECTOR: DIE FORMED SPECULAR ALZAK, OPTICALLY ENGINEERED TO PERFORM EFFICIENTLY WITH LIGHT CONTROL ELEMENTS.

FACE PLATE: CAST ALUMINUM, PROVIDED WITH DROP HINGES, GASKETED TO HOUSING AND SECURED WITH 2 PHILLIPS HEAD CAPTIVE SCREWS. SATIN ALUMINUM ANODIZED FINISH.

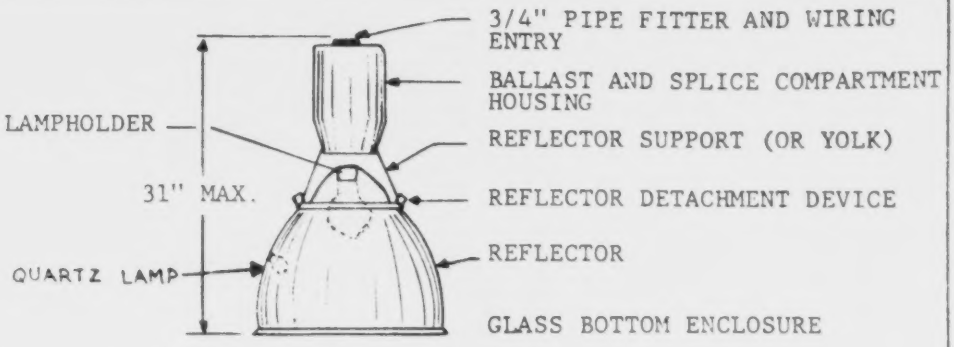
LENS: MOLDED, FLAT LENS OF CLEAR BOROSILICATE, HEAT RESISTANT GLASS PROVIDING SYMMETRIC LIGHT DISTRIBUTION.

BALLAST DATA: CONSTANT WATTAGE, HIGH POWER FACTOR, 180°C CLASS H AUTO-TRANSFORMER TYPE,

LAMP: 70 WATT HIGH PRESSURE SODIUM. OR AS NOTED.

SURFACE MOUNTED H.I.D. FIXTURE

E
H-5



BALLAST HOUSING: DIE CAST OR EXTRUDED ALUMINUM, PREWIRED.

REFLECTOR SUPPORT: (OR YOKE) - RIGID FABRICATED STEEL OR ALUMINUM, OR CAST ALUMINUM ASSEMBLY. SHALL SUPPORT A PORCELAIN BODIED LAMPHOLDER.

REFLECTOR: ALZAK (OR EQUAL) FINISHED ALUMINUM, OR PRISMATIC GLASS IN SPUN ALUMINUM HOUSING. TO BE DETACHABLE BY WAY OF TWO OR MORE CAPTIVE FINGER OPERATED SCREWS OR LOCKING DEVICE , OR BY ELECTRICALLY AND MECHANICALLY SECURE DISCONNECT SOCKET AND REFLECTOR SUPPORT. REMOVAL SHALL NOT REQUIRE TOOLS.

LAMPS: 175 WATT METAL HALIDE; 150 WATT QUARTZ TUNGSTEN HALOGEN, FOR EMERGENCY AUXILIARY.

BALLAST: HIGH POWER FACTOR, CONSTANT WATTAGE TYPE, DESIGNED TO START AND OPERATE THE LAMP ON THE SUPPLY VOLTAGE WITHIN 0°F to 104°F AMBIENT TEMPERATURE LIMITS, SHALL WITHSTAND 40% DIP IN SUPPLY VOLTAGE WITHOUT EXTINGUISHING LAMP 277 VOLT.

OPERATION: LUMINAIRE SHALL CONTAIN A DUAL LIGHTING SYSTEM FOR THE OPERATION OF ONE METAL HALIDE MAIN LAMP AND ONE 150 WATT QUARTZ TUNGSTEN HALOGEN AUXILIARY LAMP. AUXILIARY LIGHT SOURCE SHALL BE CONTROLLED BY THE BALLAST SUCH THAT SHOULD MOMENTARY POWER INTERRUPTION EXTINGUISH THE MAIN LAMP, THE QUARTZ LAMP SHALL INSTANTLY INGITE. WHENEVER THE MAIN LAMP IS ENERGIZED, THE QUARTZ LAMP SHALL REMAIN ON UNTIL THE MAIN LAMP REACHES 40% OUTPUT. THE COMBINED CURRENT OF THE MAIN LAMP ALONE, THERE SHALL BE NO LOSS IN THE SECONDARY OPEN CIRCUIT STARTING CAPABILITY WHILE THE BALLAST SHALL BE SOLID STATE, ENCAPSULATED, RATED 150° AMBIENT AND WARRANTED THREE YEARS.

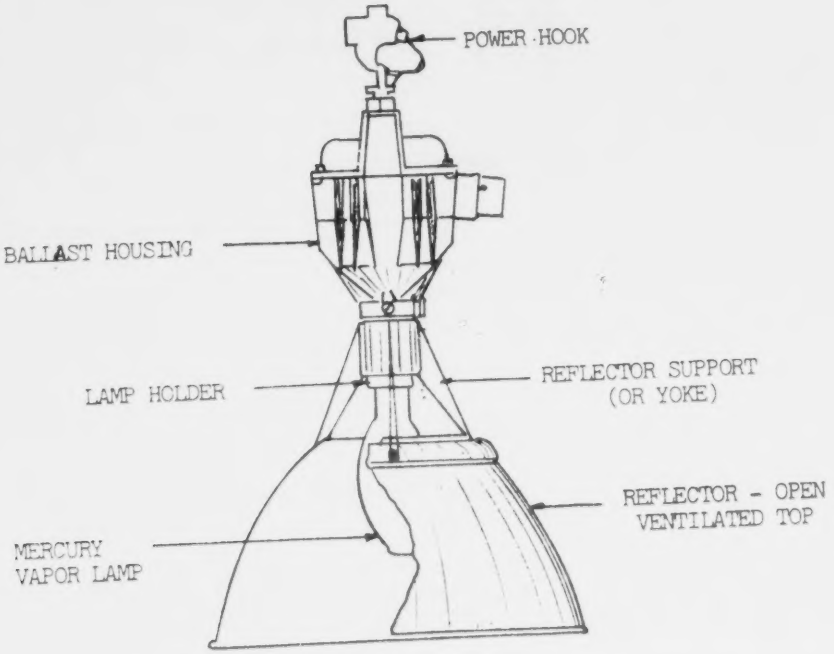
ALL HARDWARE AND THE METAL COMPONENTS SHALL BE STAINLESS STEEL OR PROVIDED WITH A CORROSION RESISTANT FINISH.

PHOTOMETRIC REQUIREMENTS: (SELECT TO SUIT REQUIREMENTS)

	MAX. SPACING RATIO	ANGLE OF MAX. CP. (REF. NADIR)	ANGLE OF ½ MAX. CP. (REF. NADIR)	MIN. SHIELDING ANGLE (BELOW HORIZ)	MIN. EFFICIENCY (REF. BARE LAMP LUMENS)
CONCENTRATING	0.7-0.8	0° - 8°	21° - 27°	30°	80%
WIDESPREAD	OVER 1.4	25° - 40°	48° - 58°	20°	69%
SPREAD	1.3 - 1.4	0° - 30°	43° - 55°	30°	74%
MEDIUM SPREAD	0.9 -1.2	0° - 15°	31° - 43°	30°	77%
CONCENTRATING	0.8 & UNDER	0° - 8°	21° - 27°	30°	80%

METAL HALIDE INDUSTRIAL LUMINAIRE
(175 WATT LAMP)

E
H-6



BALLAST HOUSING: CAST ALUMINUM, PREWIRED.

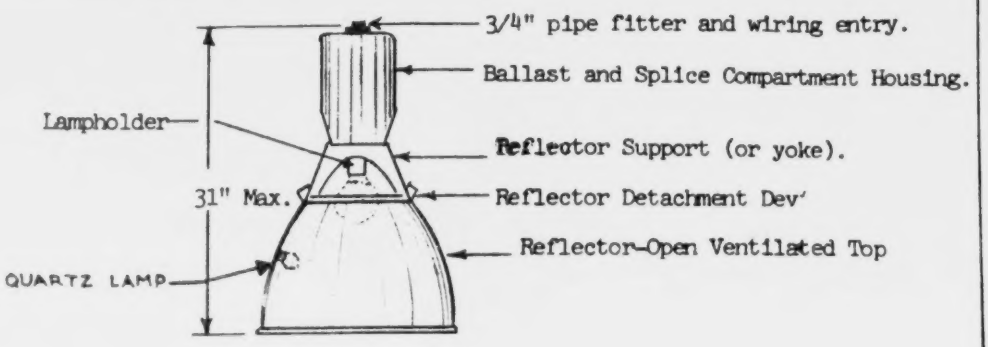
REFLECTOR: ALZAK (OR EQUAL) FINISHED ALUMINUM.

BALLAST: AS SPECIFIED.

LAMP: 250 WATTS OR AS SPECIFIED.

E
H-7

MERCURY INDUSTRIAL LUMINAIRE



BALLAST HOUSING - Die cast or extruded aluminum, prewired.

REFLECTOR SUPPORT (or yoke) - Rigid fabricated steel or aluminum, or cast aluminum assembly. Shall support a porcelain bodied lampholder.

REFLECTOR - Alzak (or equal) finished aluminum, or prismatic glass in spun aluminum housing. To be detachable by way of two or more captive finger operated screws or locking devices, or by electrically and mechanically secure disconnect socket and reflector support. Removal shall not require tools.

LAMP - 400 WATTS, H33-IGL/C., 150 WATT quartz tungsten halogen, for auxiliary emergency.

BALLAST - High power factor, constant wattage type, designed to start and operate the lamp on the supply voltage within 0°F to 104°F ambient temperature limits. Shall withstand 40% dips in supply voltage without extinguishing lamp.

All hardware and other metal components shall be stainless steel or provided with a corrosion resistant finish.

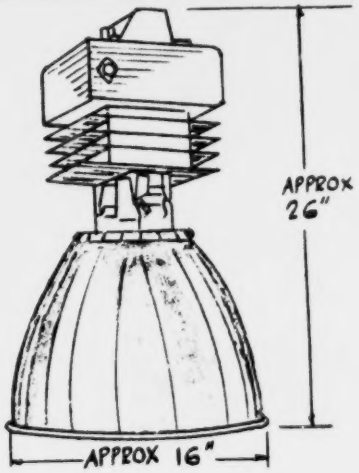
PHOTOMETRIC REQUIREMENTS: (Select to suit design requirements)

	Max. Spacing Ratio	Angle of Max. CP. (Ref. Nadir)	Angle of 1/2 Max. CP. (Ref. Nadir)	MIN. Shielding Angle (Below Horiz.)	MIN. Efficiency (Ref.-B.L. Lumens)
Widespread	Over 1.4	25° - 40°	48° - 58°	20°	69%
Spread	1.3 - 1.4	0° - 30°	43° - 55°	30°	74%
Medium Spread	0.9 - 1.2	0° - 15°	31° - 43°	30°	77%
Concentrating	0.8 and Under	0° - 8°	21° - 27°	30°	80%

(DESIGNER'S NOTE: Light distribution types above which do not apply should be omitted from this detail. The distribution type for each outlet should be identified on the plans.)

E
H-8

MERCURY INDUSTIRAL LUMINAIRE



HOUSING: EXTRUDED AND DIE CAST ALUMINUM WITH HORIZONTAL HEAT RADIATING FINS.

REFLECTOR: SPECULAR ALUMINUM - WIDE SPREAD DISTRIBUTION.

FINISH: MEDIUM BRONZE BAKED ACRYLIC ENAMEL.

SOCKET: MOGUL BASE HEAVY DUTY PORCELAIN.

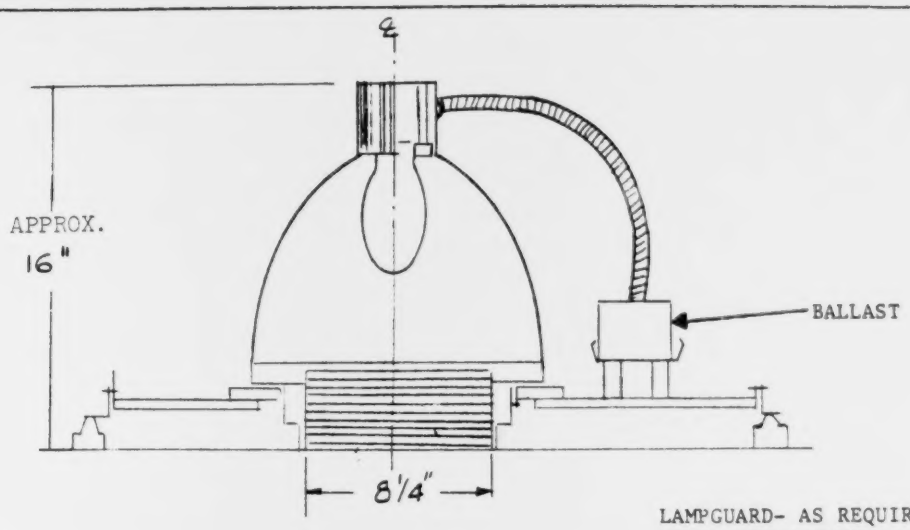
LAMP: ONE 400 W. METAL HALIDE - PHOSPHOR COATED.

AUXILIARY: 250W. QUARTZ LAMP WITH SOLID STATE RELAY.

BALLAST: H.P.F. REGULATED AUTO TRANSFORMER FOR USE AT 277 VOLTS, 60 HERTZ.

INDUSTRIAL H.I.D. - HIGH BAY

E
H-9



LAMPGUARD- AS REQUIRED BY THE MANUFACTURER.

HOUSING: ALUMINUM-EXTRUDED FINNED SOCKET HOUSING.

REFLECTOR: SPECULAR ALZAK ALUMINUM #15 GA.

BAFFLE: ALUMINUM MICROGROVE WITH VELVET BLACK FINISH.

BALLAST: CONSTANT WATTAGE H.P.F.

RELAMPING: THROUGH APERTURE.

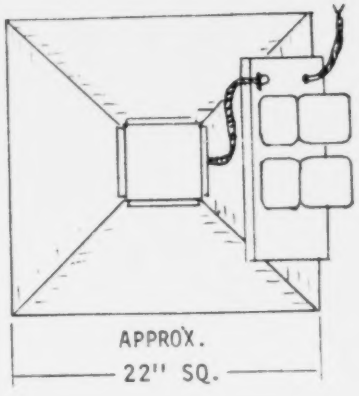
TYPE A HAS 175W MERCURY VAPOR LAMP. E-28 DELUXE WHITE.

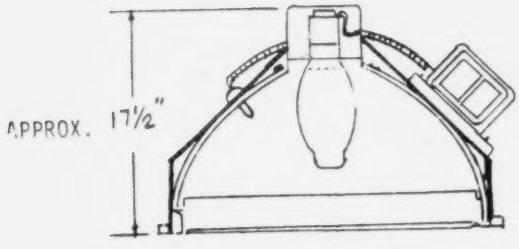
TYPE B HAS 100W MERCURY VAPOR LAMP. E-23½ DELUXE WHITE.

TYPE C HAS 250W MERCURY VAPOR LAMP. E-28 DELUXE WHITE.

RECESSED MERCURY VAPOR DOWN LIGHT

E
H-10





FIXTURE: 2'x2" LAY-IN HEAVY GAUGE ALUMINUM HOUSING. REFLECTOR SATIN ANODIZED ALUMINUM. TRANSFORMER TO BE HPF CLASS H AUTO-STABILIZED, CONSTANT WATTAGE. REVEAL SHALL BE 2 INCH DEEP AND BLACK ALUMINUM.

LAMP: 400W METAL HALIDE (VERTICAL MOUNT) MOGUL BASE: GLAZED PORCELAIN, ADJUSTABLE.

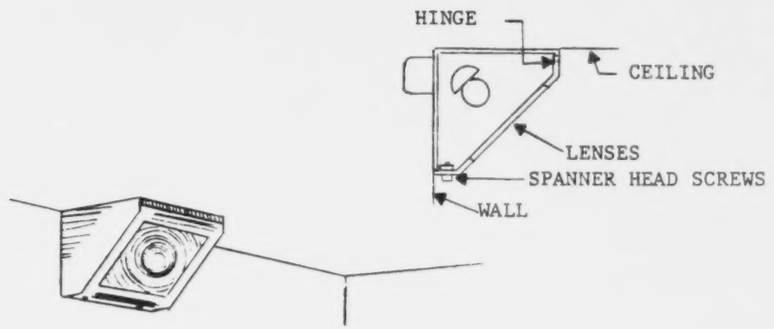
MISC.: SERVICE PANEL TO BE ALUMINUM WITH HINGES AND REMOVABLE TO ACCESS WIRING.

NOTE: FIXTURE TO HAVE 150 WATT AUXILIARY QUARTZ LIGHT WHERE SPECIFIED, FOR EMERGENCY.

LENS: TEMPERED GLASS BOTTOM.

E
H-11

RECESSED H.I.D. LIGHT-FIXTURE



HOUSING: ONE-PIECE CAST ALUMINUM. HOUSING SHALL MOUNT ON 16 GUAGE REINFORCED STEEL BACK PLATE. HOUSING SHALL HAVE FRONT ACESS WITH THE HOUSING HINGED FROM THE BACK PLATE WITH A CONTINUOUS HINGE AND SECURED BY MEANS OF TWO SPANNER HEAD TAMPER PROOF SCREWS.

REFLECTOR: SEMI-SPECULAR ANODIZED ALUMINUM.

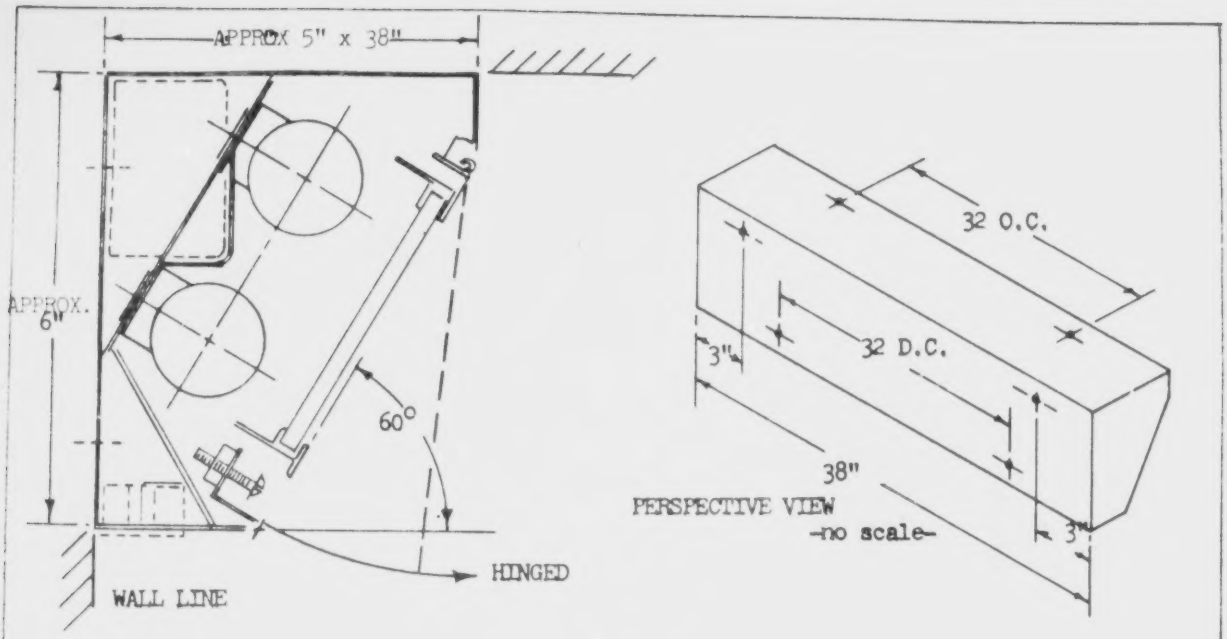
FINISHES: SATIN ALUMINUM ANODIZED FOR PERMANENCE.

LENS: HI-STRESS PRISMATIC GLASS LENS PROTECTED WITH SHOCK ABSORBING GASKET. ADDITIONAL PROTECTION PROVIDED BY A 1/4" TEMPERED PLATE GLASS AND GASKET. LENSES ARE SECURED TO HOUSING BY MEANS OF TWO 14 GUAGE STEEL RAILS.

LAMP: 150 WATT INCANDESCENT, MOUNTED HORIZONTALLY.

CORNER SURFACE MOUNTED INCANDESCENT UNIT:
(SUITABLE FOR USE IN PSYCHIATRIC WARD).

E
SE-1



CORNER BRACKET MOUNTED TWO-LAMP FLUORESCENT SECURITY LIGHTING FIXTURE, NOMINAL 38 INCHES LONG.

HOUSING: CLOSED TIP, BACK, AND ENDS OF NOT LESS THAN 18 GAUGE (0.050) CORROSION RESISTANT STEEL. FACE PLATE ALSO 18 GAUGE WITH ALL WELDED SEAMS. MINIMUM OF TWO TAMPERPROOF MACHINE SCREWS TO HOLD HINGED DOOR SECURE (CAPTIVE) WITH NUTHOLDER AND KEEPERS. TWO ½ INCH KNOCK-OUTS IN BACK OF HOUSING FOR WIRING. DOOR TO BE ATTACHED WITH CONTINUOUS STEEL "PIANO" HINGE SPOT WELDED BETWEEN HINGED DOOR IN CLOSED POSITION. GASKETING BETWEEN DOOR AND HOUSING TO BE CONTINUOUS NEOPRENE SPONGE.

LENS: ONE PIECE FLAT MATTE WHITE 100% VIRGIN ACRYLIC PLASTIC MINIMUM ⅛ INCH THICHNESS. PANEL TO BE NON-REMOVABLE FROM DOOR FROM THE OUTSIDE. PANEL SECURED IN DOOR WITH L-CHANNELS ON FOUR SIDES.

FINISHES: INSIDE HOUSING BAKED WHITE ENAMEL OVER MULTI-STAGE CORROSION RESISTANT PRIMER. OUTSIDE HOUSING BRUSHED CORROSION RESISTANT STEEL. OTHER METAL PARTS NON-CORROSIVE.

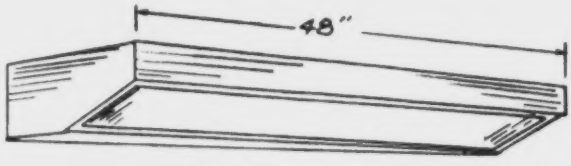
REFLECTOR: NOT LESS THAN 0.029 INCH STEEL; REMOVABLE FOR ACCESS TO BALLAST AND WIRING.

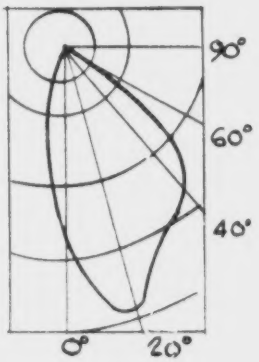
LAMPS: TWO T12, F30 RAPID START FLUORESCENT.

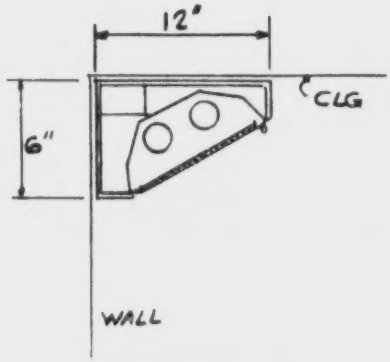
BALLASTS: SINGLE TWO LAMP HPF FOR RAPID START LAMP TYPE 120V.

CORNER BRACKET FLUORESCENT SECURITY LIGHT

E
SE-2







HOUSING: MINIMUM 16 GAUGE STEEL CONSTRUCTION OR EQUIVALENT STRENGTH ALUMINUM.

LENS: FRAMED ⅛" THICK PRISMATIC OR RIBBED TEMPERED GLASS OR HIGH IMPACT ACRYLIC PLASTIC FULLY CUSHIONED IN SHOCK ABSORBING GASKETS.

HINGE: CONTINUOUS STAINLESS STEEL PIANO TYPE.

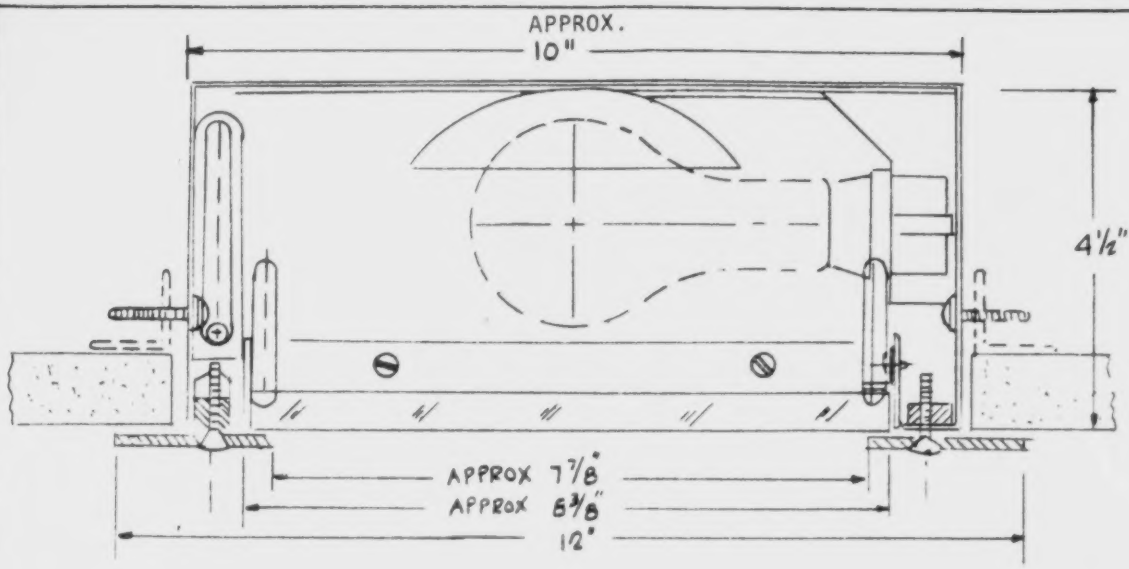
HARDWARE: TAMPER PROOF CAPTIVE STAINLESS STEEL SPANNER HEAD SCREWS.

LAMPS: 2 F40-T12- -RS FOR USE AT 120 VOLTS 60 HERTZ.

BALLAST: TWO-LAMP HPF, RAPID START, 120 VOLTS.

E
SE-3

WALL MOUNTED FLUORESCENT LIGHT



HOUSING: HOUSING TO BE 16 GAUGE STEEL AND FACE PLATE TO BE 12 GAUGE STEEL. HOUSING TO BE EITHER DEEP DRAWN OR WELDED CONSTRUCTION. UNIT TO BE FURNISHED WITH MOUNTING ACCESSORIES APPLICABLE FOR PLASTER CEILING CONSTRUCTION. FACE PLATE TO BE HELD SECURE WITH FOUR TAMPERPROOF MACHINE SCREWS. DOOR TO HAVE CONTINUOUS NEOPRENE SPONGE GASKETING.

LENS: ONE PIECE CLEAR 100% VIRGIN ACRYLIC PLASTIC MINIMUM ⅛ INCH THICHNESS.

REFLECTOR: ALUMINUM, ONE PIECE, SPECULAR ALZAK (OR EQUAL) FINISH.

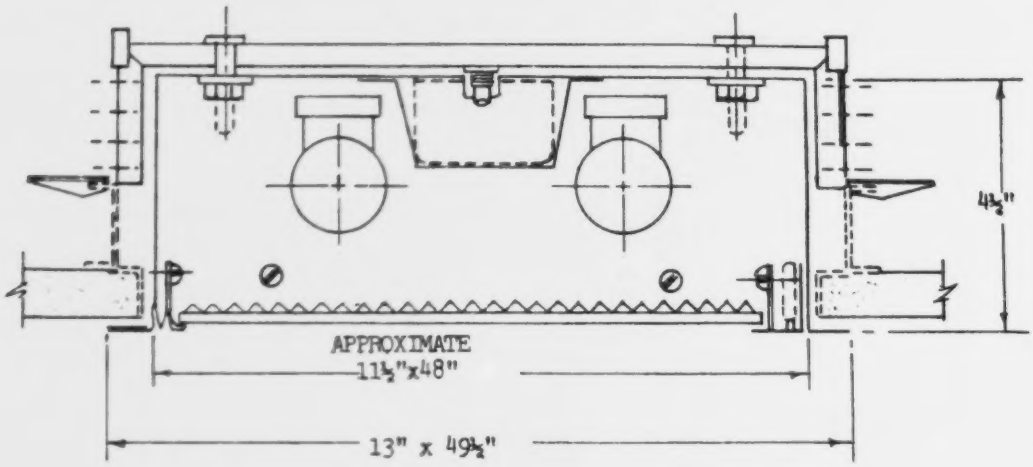
LAMP: ONE 150W INCANDESCENT MEDIUM BASE, 120V UNLESS OTHERWISE SPECIFIED.

LAMPHOLDER: PORCELAIN MEDIUM BASE SOCKET MOUNTED ON ANGLE STRAP.

FINISH: HOUSING BAKED WHITE ENAMEL OVER A MULTI-STAGE CORROSION RESISTANT PRIMER. ALL OTHER METAL PARTS TO BE NON-CORROSIVE.

RECESSED SECURITY-TYPE INCANDESCENT FIXTURE: NOMINAL 1 x 1 FT SQUARE

E
SE-1



RECESSED TWO-LAMP FLUORESCENT LIGHTING FIXTURE, FLANGE MOUNTED FOR PLASTER CEILING, SECURITY TYPE: NOMINAL: 1 x 4 FT AND APPROX. 5 INCHES DEEP.

HOUSING: STEEL A MINIMUM OF 19 GAUGE FOR THE HOUSING AND 16 GAUGE FOR THE DOOR. TWO CROSS MOUNTING HANGERS AND BRACKETS FOR ADJUSTMENT IN CEILING. CONTINUOUS STEEL "PIANO" HINGE SPOT WELDED BETWEEN DOOR FRAME AND HOUSING. MINIMUM OF THREE TAMPERPROOF MACHINE S SCREWS TO HOLD HINGED DOOR. LENS PANEL HELD SECURE WITH L- ANGLES AND MACHINE SCREWS (SIX EACH SIDE). LENS NON-REMOVABLE FROM PANEL FROM OUTSIDE.

REFLECTOR: HOUSING AND/OR WIRING COVER TO BE MINIMUM OF 0.029 INCH STEEL. FINISH TO BE BAKED WHITE ENAMEL OVER MULTI-STAGE PRIMER, MINIMUM OF 85% REFLECTANCE.

LENS: CLEAR TEMPERED GLASS MINIMUM OF ⅛ INCH THICKNESS BACKED WITH ACRYLIC PLASTIC PRISMATIC LENS? FIXTURE LUMEN OUTPUT MINIMUM OF 60% OF BASE LAMP LUMENS.

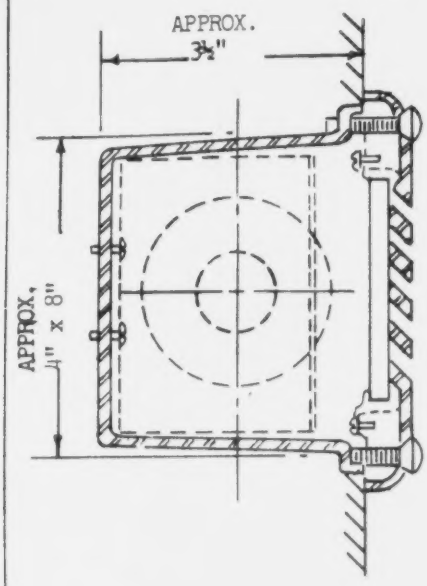
LAMPS: TWO F40, T12 RAPID START FLUORESCENT.

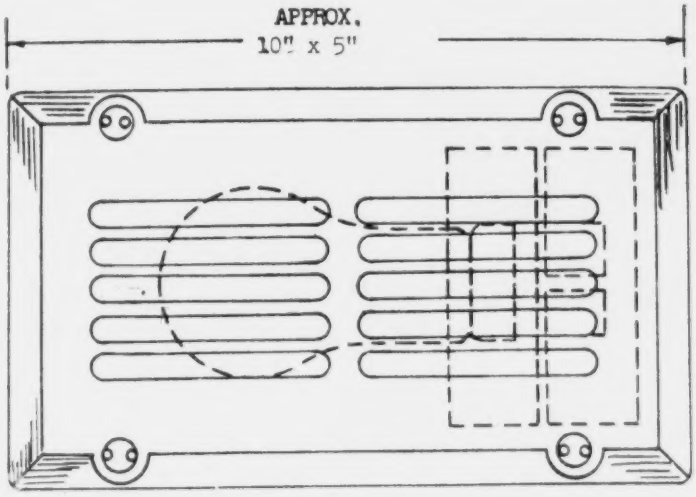
BALLAST: SINGLE TWO-LAMP HPF RAPID START TYPE, 120V.

FINISH: HOUSING, DOOR, AND TRIM - BAKED WHITE ENAMEL OVER MULTI-STAGE CORROSION RESISTANT PRIMER.

RECESSED FLUORESCENT FIXTURE - SECURITY TYPE.

E
SE-5





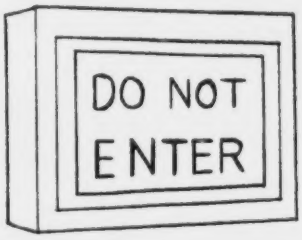
HOUSING: HOUSING AND FACE PLATE TO BE CAST ALUMINUM. ONE 7/8 INCH DIAMETER HOLE IN END FOR WIRE ENTRY(SOCKET END OF HOUSING).FACE PLATE TO BE LOUVERED (HORZ) WITH CLEAR WIRED GLASS PANEL MINIMUM ¼ INCH THICHNESS. GLASS PANEL HELD SECURE WITH FOUR 8 - 32 x⅜ INCH MACHINE SCREWS AND BENT CLIPS. FACE PLATE HELD SECURE WITH TAMPERPROOF MACHINE SCREWS WITH CAPTIVE KEEPERS AND COUNTERSUNK HOLES.

LAMPHOLDER: PORCELAIN MEDIUM BASE 120V UNLESS OTHERWISE SPECIFIED. LAMP TO BE LONG LIFE, I.D. 40,000 HOURS.

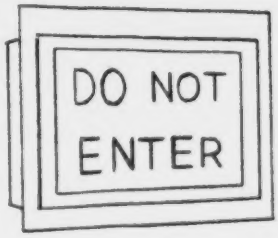
FINISH: HOUSING TO BE BAKED WHITE ENAMEL OVER A MULTI-STAGE CORROSION RESISTANT PRIMER. ALL OTHER METAL PARTS TO BE NON-CORROSIVE.

RECESSED SECURITY-TYPE NIGHT LIGHT

E
SE-6



(SURFACE MOUNTED)
TYPE 'A'



(RECESSED)
TYPE 'B'

HOUSING: CAST OR EXTRUDED ALUMINUM.

DOOR AND TRIM FRAME: HINGED AND LATCHED: CAST OR EXTRUDED ALUMINUM.

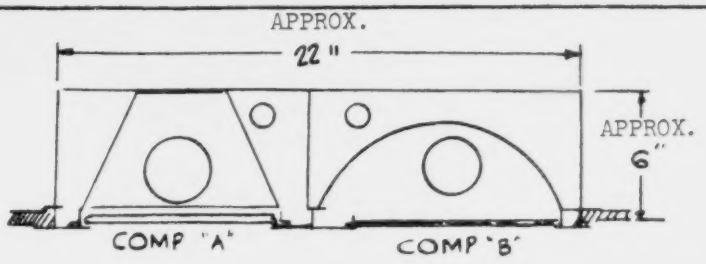
FINISH: SATIN OR BRUSHED ALUMINUM FINISH.

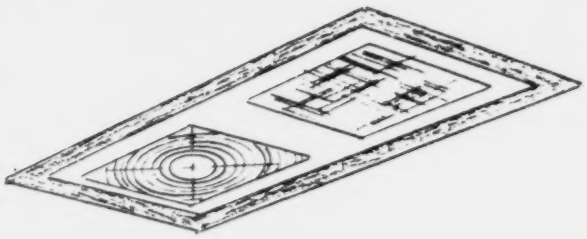
INSCRIPTION PANEL: WHITE COLOR STABLE PLASTIC OR FIBERGLASS WITH 2-1/2 INCH BLACK LETTERS.

LAMPS: 2 - 15 WATT, T-6, 145 VOLT INCANDESCENT WITH MINIMUM OF 20,000 HOURS LIFE.

DARKROOM ENTRY LIGHT

E
D-1





HOUSING: DOUBLE COMPARTMENT - STEEL 20 GAUGE.

FINISH: MATTE BLACK BAKED ENAMEL.

LENS: A-FLAT WIDE SPREAD FRESNEL LENS.
B-KODAK "6B" FILTER-SAFELIGHT.

MOUNTING: RECESSED.

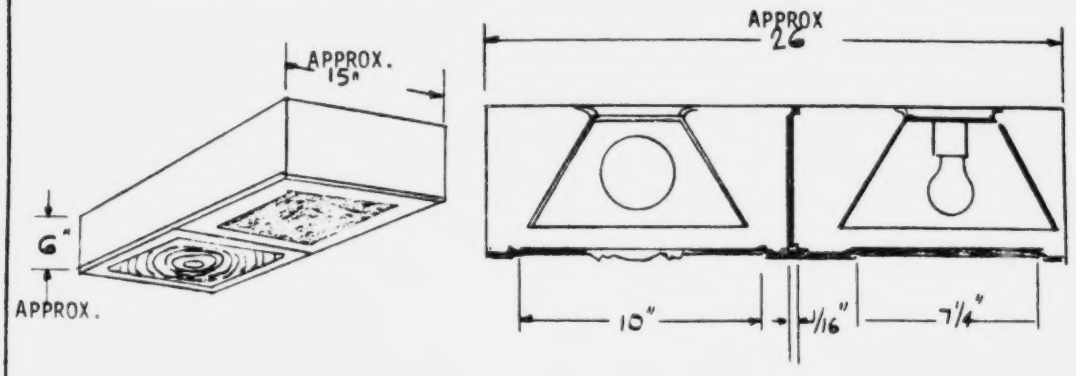
FILTERS: ONE-PIECE STAINLESS STEEL FRAME FULLY LIGHT SEALED.

VOLTAGE: 120 V.

LAMPS: (1) 25 WATT MAX. AND (1) 150 WATT MIN. 'A' LAMPS.

DARKROOM SAFELIGHT, TWO COMPARTMENTS, RECESSED

E
D-2



HOUSING: 20 GAUGE C.R.S CONSTRUCTION; WIRING ACCESSIBLE FROM BELOW; RIGID LAMP HOLDER SUPPORT; TWO INDIVIDUAL LAMP COMPARTMENTS. UNIT MOUNTED AT 4 POINTS MINIMUM.

REFLECTORS: MATTE ALUMINUM, ONE FOR EACH LAMP HOUSING.

LENS DOORS: ONE PIECE REINFORCED FRAME FOR EACH COMPARTMENT WITH CONTINUOUS PIANO HINGE ON ONE SIDE: TWO CAPTIVE KNURLED SLOTTED THUMB SCREWS HOLDS FRAME IN PLACE; INTEGRAL GASKETING.

FINISH: WHITE BAKED ENAMEL.

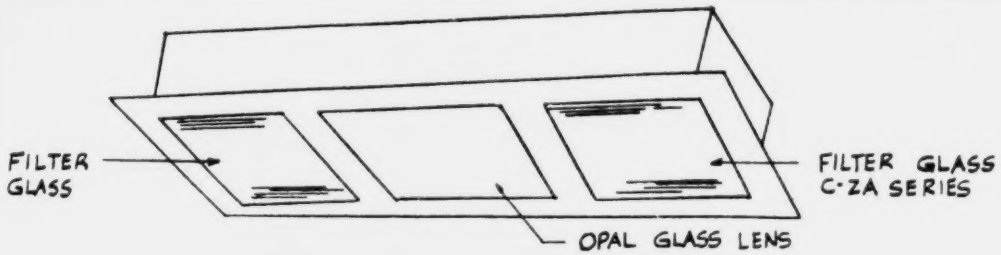
LENS: (1) KODAK AMBER FILTER WRATTEN SERIES 6B AND (1) WIDE SPREAD FLAT FRESNEL.

LAMPS: (1) 25 WATT MAX. AND (1) 150 WATT MIN. 'A' LAMPS.

MOUNTING: SURFACE

DAKROOM SAFELIGHT , TWO COMPARTMENTS, SURFACE MOUNTED

E
D-3



RECESSED DARKROOM SAFELIGHT: APPROXIMATELY 12"x28"x6"

COMBINATION SAFELIGHT AND WHITE-LIGHT ILLUMINATOR FOR DARKROOM SUITABLE FOR RECESSED CEILING MOUNTED. CENTER COMPARTMENT SHALL CONSIST OF AN OPAL GLASS LENS AND A MINIMUM 150 WATT LAMP. END COMPARTMENTS SHALL CONSIST OF FILTER GLASS AS DESIGNATED ABOVE WITH 25 WATT LAMPS.

HOUSING: MINIMUM 20 GAUGE STEEL WITH FULLY GASKETED TRIM FOR LIGHT-TIGHT COMPARTMENTS; SHALL SUPPORT A MEDIUM BASE LAMPHOLDER IN EACH COMPARTMENT; FURNISHED WITH MOUNTING ACCESSORIES APPLICABLE FOR THE CEILING CONSTRUCTION.

REFLECTOR: ALUMINUM ONE PIECE; PUNCHED TO RECEIVE LAMP HOLDER; SPECULAR ALZAK (OR EQUAL) FINISH IN EACH COMPARTMENT.

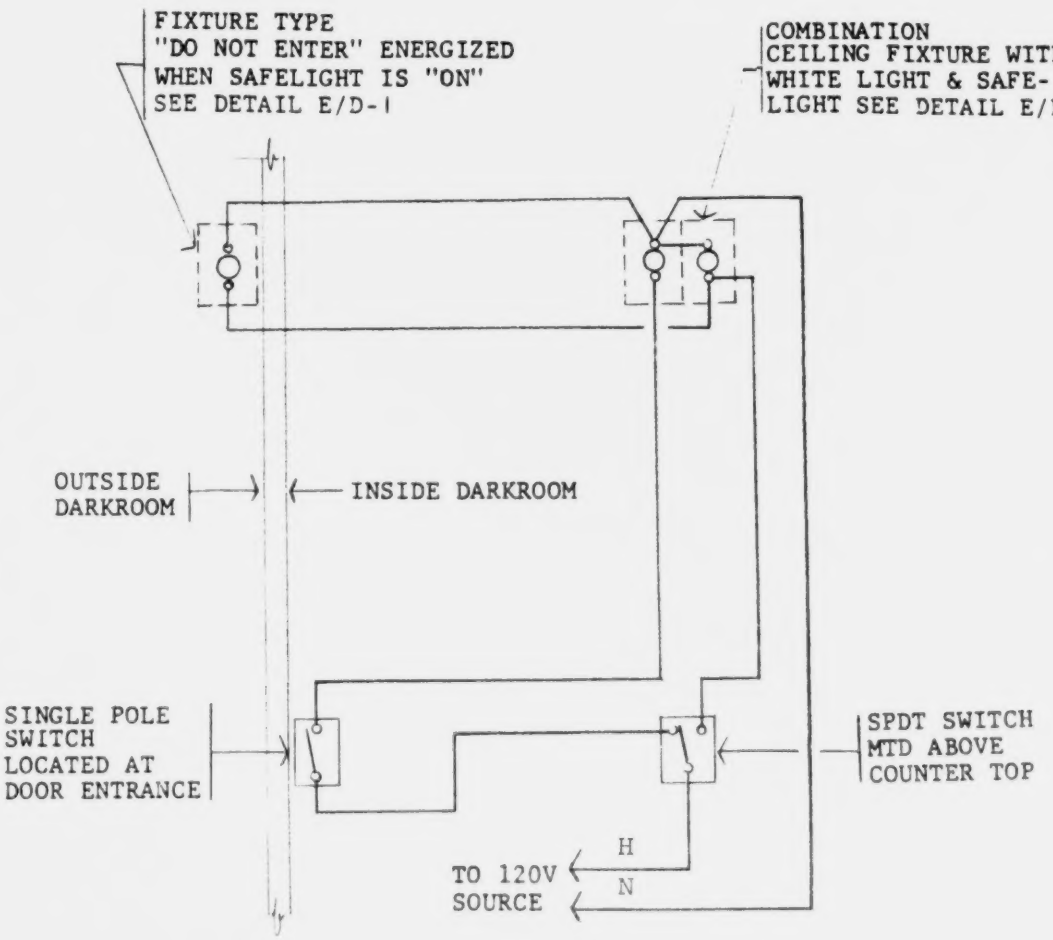
FINISH: HOUSING SHALL BE BAKED WHITE ENAMEL OVER A CORROSION RESISTANT PRIMER.

TRIM: SHALL BE HINGED FOR LAMP REPLACEMENT AND FINISH SHALL BE SATIN ALUMINUM OR BAKED WHITE ENAMEL.

LENSES: FILTER GLASS 'A'- AMBER FILTER
FILTER GLASS 'B'- RED FILTER
CENTER COMPARTMENT- OPAL GLASS

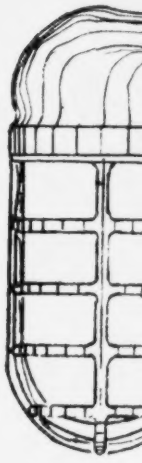
DARKROOM SAFE LIGHT, THREE COMPARTMENTS, RECESSED

E
D-4



DARKROOM WIRING DIAGRAM

E
D-5



BODY: HEAVY CORROSION RESISTANT CAST METAL
TO RECEIVE SCREW TYPE GLOBE AND GUAR
FLANGED FOR MOUNTING TO 4" CAST BOX.

GLOBE: CLEAR GLASS; THREADED TO FIT BODY.

GASKETS: HEAT AND MOISTURE RESISTANT; BETW
OUTLET BOX.

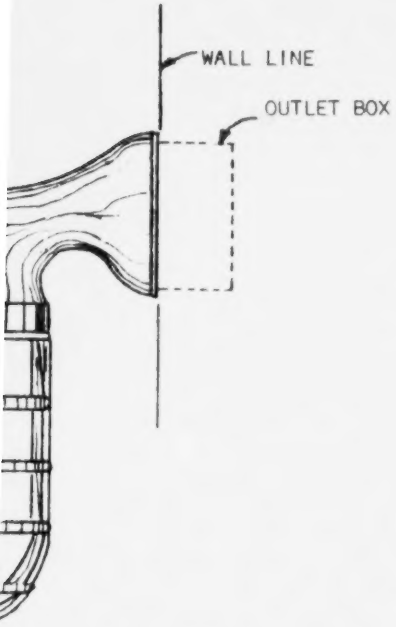
GUARD: HEAVY ONE-PIECE CAST ALUMINUM; THRE
SCREW DEVICE.

FINISH: ALL FERROUS METAL PARTS SHALL HAVE

LAMPHOLDER: MEDIUM SCREW BASE; PORCELAIN E

LAMPS: INCANDESCENT; 100 WATT MAX. OR 200

ENCLOSED AND GASKETED INCANDESCENT FIXTURE



; FOR SUPPORT OF LAMPHOLDER; THREADED
D; 90 DEGREE ANGLED FOR BRACKET MOUNTING;

EEN GLOBE AND BODY, AND BODY AND

ADED TO FIT FIXTURE BODY; WITH LOCKING

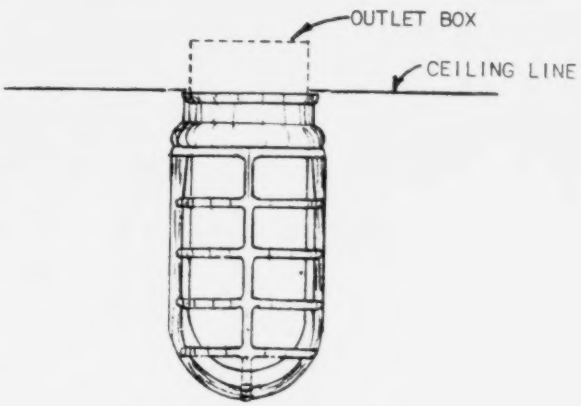
CORROSION RESISTANT FINISH.

ODIED; HAVING SCREW TERMINALS.

WATT MAX. AS REQUIRED.

- WALL MOUNTED

E
O-1



BODY: HEAVY CORROSION RESISTANT CAST METAL; FOR SUPPORT OF LAMPHOLDER; THREADED TO RECEIVE SCREW TYPE GLOBE AND GUARD; FLANGED FOR MOUNTING TO 4" CAST BOX.

GLOBE: CLEAR GLASS; THREADED TO FIT BODY.

GASKETS: HEAT AND MOISTURE RESISTANT; BETWEEN GLOBE AND BODY; AND BODY AND OUTLET BOX.

GUARD: HEAVY ONE-PIECE CAST ALUMINUM; THREADED TO FIT FIXTURE BODY; WITH LOCKING SCREW DEVICE.

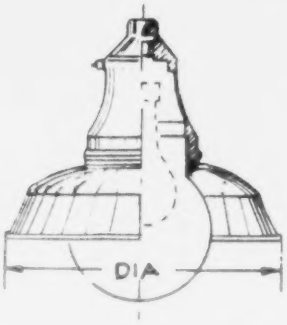
FINISH: ALL FERROUS METAL PARTS SHALL HAVE CORROSION RESISTANT FINISH.

LAMPHOLDER: MEDIUM SCREW BASE; PORCELAIN BODIED; HAVING SCREW TERMINALS.

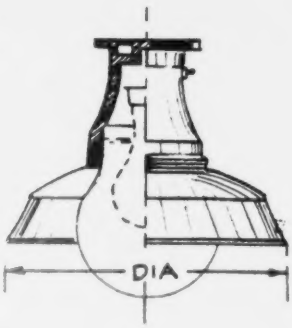
LAMPS: INCANDESCENT; 100 WATT MAX. OR 200 MAX. AS REQUIRED.

ENCLOSED AND GASKETED INCANDESCENT FIXTURE

E
0-2



PENDANT HOOD TYPE



CEILING HOOD TYPE

HOODS: CAST ALUMINUM; GASKETED FITTINGS; ½" THREADED FOR PENDENT MOUNTING OR FOR MOUNTING TO 4" BOX.

REFLECTOR: PORCELAIN ENAMELED STEEL; MAXIMUM 18" DIAMETER; THREADED NECK FOR ATTACHMENT.

GLASSWARE: CLEAR, HEAT-RESISTING GLASS; THREADED NECK FOR ATTACHMENT; GASKETED TO HOOD.

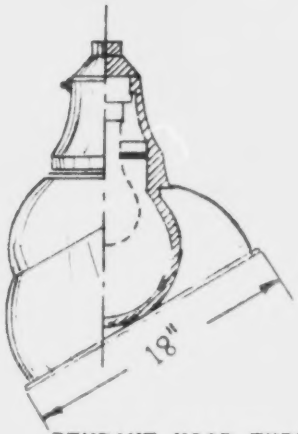
FINISH: REFLECTOR; ACID RESISTANT, WHITE PROCELAIN ENAMEL.

LAMPHOLDER: MEDIUM BASED, PORCELAIN BODIED.

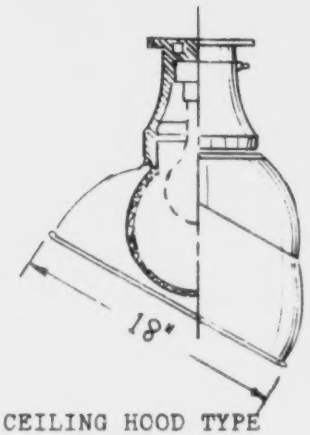
LAMP: INCANDESCENT, A OR PS TYPE; _____ WATTS.

VAPORTIGHT INCANDESCENT - WITH DOME REFLECTOR
(ENCLOSED AND GASKETED)

E
0-3



PENDANT HOOD TYPE



CEILING HOOD TYPE

HOODS: CAST ALUMINUM; GASKETED FITTINGS; ½" THREADED FOR PENDENT MOUNTING OR FOR MOUNTING TO 4" BOX.

REFLECTOR: PORCELAIN ENAMELED STEEL; ANGLED 30 DEGREE FROM VERTICAL; MAXIMUM 18" DIAMETER: THREADED NECK FOR ATTACHMENT.

GLASSWARE: CLEAR, HEAT-RESISTING GLASS; THREADED NECK FOR ATTACHMENT; GASKETED TO HOOD.

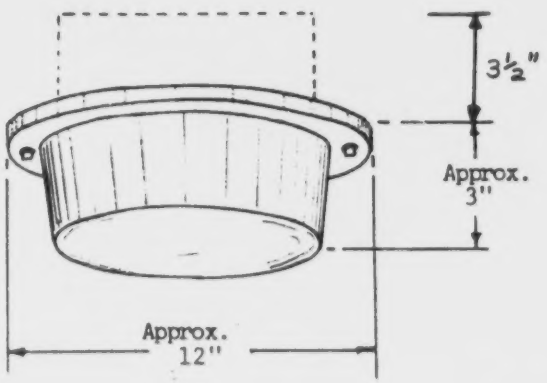
FINISH: REFLECTOR; ACID RESISTANT, WHITE PORCELAIN ENAMEL.

LAMPHOLDER: MEDIUM BASED, PORCELAIN BODIED.

LAMP: INCANDESCENT, A OR PS TYPE; _____ WATTS.

VAPORTIGHT INCANDESCENT- WITH SYMMETRICAL ANGLE REFLECTOR
(ENCLOSED AND GASKETED)

E
O-4



HOUSING: MINIMUM .040" THICK ALUMINUM, CORROSION RESISTANT. GASKETED BETWEEN GLASS AND TRIM AND BETWEEN TRIM AND HOUSING.

FINISH: HOUSING - NATURAL ALUMINUM; FACE TRIM - ANODIZED ALUMINUM.

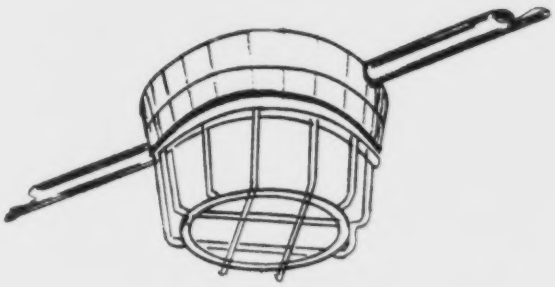
LENS: PRESSED WHITE CERAMIC COATED GLASS.

MOUNTING: SEMI-RECESSED ON 4" OUTLET BOX.

LAMP: 1 - 100W A 19 IF MEDIUM BASE, 120 VOLT.

SEMI-RECESSED INCANDESCENT

E
O-5



CONSTRUCTION: ONE PIECE CAST ALUMINUM, MINIMUM WALL THICKNESS OF 0.15-INCH; BACKPLATE THREAD TO ACCEPT THE THREADED NECK OF THE GLOBE.

REFLECTOR: SEMI-SPECULAR ALUMINUM, ANODIZED FOR PERFORMANCE.

GLOBE: CARRARA GLASS IMPACT RESISTING MOLDED 1/4-INCH MINIMUM WALL THICKNESS; THREADED AND SUPPLIED WITH RUBBEROID-GASKET.

FINISHING COLLAR: CAST ALUMINUM, MATTE FINISH; TO CONCEAL OUTLET BOX.

PROTECTIVE GUARD: CAST ALUMINUM, SECURELY HINGED TO BACKPLATE WITH CAPTIVE SCREWS.

LAMP: 1- 100W A19 IF MEDIUM BASE, 120V.

(UL LISTED FOR WET LOCATION)

E
O-6

INCANDESCENT DRUM FIXTURE WITH GUARD

TYPE A

HOUSING OR BACK PLATE: Minimum 1/8" thick cast aluminum, for mounting to recessed junction box; shall support two prewired, porcelain, medium based lampholders, suitable for outdoor location.

REFLECTOR: Anodized aluminum, semi-specular with thermo insulation backing.

DIFFUSER FRAME: Approximately 13" diameter; minimum 1/8" thick cast aluminum, with satin anodized finish; gasketed to housing and hinged for relamping; retaining screw (s) to be stainless steel.

DIFFUSER: Molded, heat and shock resistant, white opal glass; gasketed within diffuser frame.

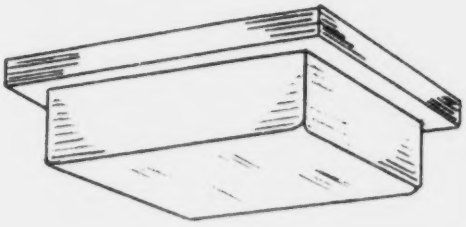
LAMPS: 2-75 watt maximum, incandescent.

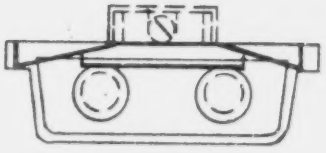
TYPE B

Same construction as above except protected with a cast aluminum guard integral with the diffuser frame.

ENCLOSED AND GASKETED **ROUND SURFACE UNIT FOR EXTERIOR APPLICATIONS**

E
0-7





TYPE A:

HOUSING OR BACK PLATE: Minimum 1/8" thick cast aluminum, for mounting to recessed junction box; shall support two prewired. porcelain, medium based lampholders.

REFLECTOR: Anodized aluminum, semispecular with thermal insulation backing.

DIFFUSER FRAME: Approximately 14" square; minimum 1/8" thick cast aluminum, with satin anodized finish; gasketed to housing and hinged for relamping; retaining screw(s) to be stainless steel.

DIFFUSER: Molded, heat and shock resistant, white opal glass; gasketed within diffuser frame.

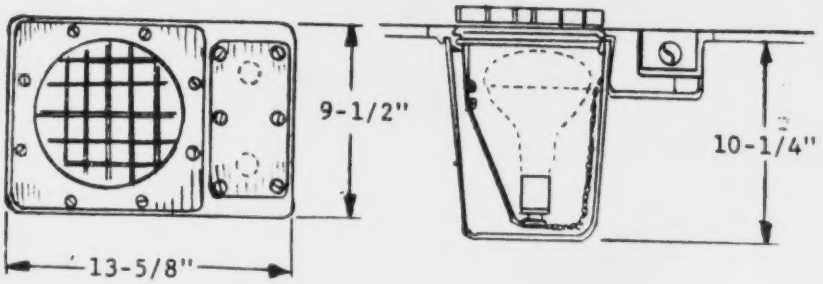
LAMPS: 2-100 watt maximum, incandescent.

TYPE B:

Same construction as above except protected with a cast aluminum guard integral with the diffuser frame.

ENCLOSED AND GASKETED SQUARE SURFACE INCANDESCENT UNIT

E
0-8



HOUSING: ONE PIECE CAST BRONZE - GASKETED

LENS: HEAT RESISTANT TEMPERED FLAT ZINC BOROSILICATE GLASS

LAMP: PAR 38 - 250 WATT QUARTZ, 120 VOLT

SOCKET: PORCELAIN MEDIUM BASE

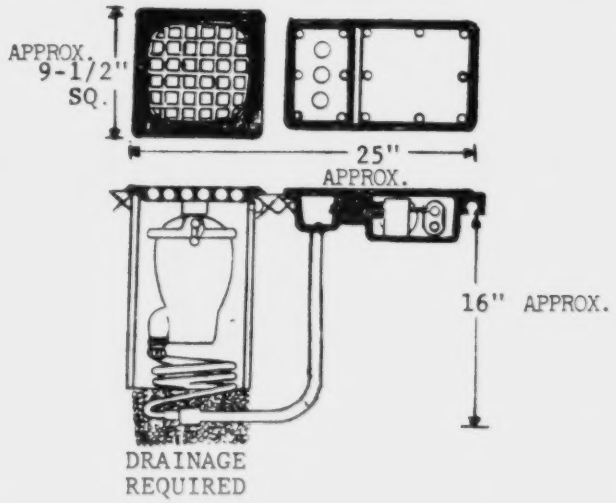
LAMP ADJUSTMENT: 20° EACH SIDE OF VERTICAL, 320° HORIZONTAL ROTATION, LOCKABLE IN POSITION.

CONDUIT TAPS: 2 - 3/4" NFP

ACCESSORIES: BRONZE DIRECTIONAL LOUVER

DIRECT BURIAL - LANDSCAPE LIGHT

E
O-9



FIXTURE - CAST BRONZE, ROUNDED LENS IN HEAT RESISTANT TEMPERED ZINC BOROSILICATE GLASS. LENS GASKET SHALL BE SILICON RUBBER. PREWIRED CORD SHALL ENTER FIXTURE THROUGH BRASS SEAL. SOCKET IS PORCELAIN AD MEDIUM BASE SOCKET.

WELL - HEAVY TRANSITE TILE WITH ANTI-GLARE FLAT BLACK INTERIOR.

LOUVER - CAST ALUMINUM, SECURED TO WELL WITH A MINIMUM OF THREE (3) TAMPER RESISTANT STAINLESS STEEL SOCKET HEAD SCREWS. LOUVER SHALL PROVIDE 42° LIGHT CUT-OFF.

FIXTURE ADJUSTMENTS - FIXTURE MAY BE ROTATED 360°, SUSPENDED FROM LOUVER BY STAINLESS STEEL WIRE HANGERS ALLOWING 15° TILT FROM VERTICAL. FIXTURE FIRMLY LOCKABLE IN AIMING POSITION.

JUNCTION BOX - CAST ALUMINUM ALLOY 356 WITH BITUMINOUS PAINT ON BELOW GRADE PORTIONS. COVER GASKET IS NEOPRENE. REQUIRED, WITH FIXTURE 1/2" RIGID GALVANIZED CONDUIT WITH BRASS SEAL FOR FIXTURE CORD. MINIMUM VOLUME 40 CUBIC INCHES.

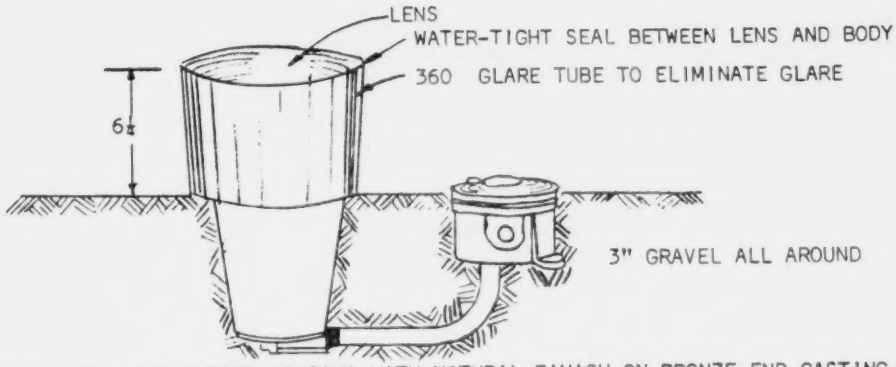
BALLAST BOX - ONE PIECE CAST ALUMINUM ALLOY 356 WITH BITUMINOUS PAINT ON BELOW GRADE PORTIONS. BALLAST AND SPLICE COMPARTMENT SEPARATED BY DOUBLE WALL. COVER GASKET IS NEOPRENE. BOX IS PRE-WIRED AND SUPPLIED WITH BARRIER TO PREVENT CONDENSATION THROUGH WIRES.

BALLAST - 100 WATT, HIGH POWER FACTOR AUTO REGULATOR.

LAMP - 100 WATT MERCURY VAPOR, DELUXE WHITE.

EXTERNAL GROUND MERCURY VAPOR FIXTURE

E
O-10



BODY: SEMI-RECESSED UP LIGHT COPPER HOUSING WITH NATURAL FINISH ON BRONZE END CASTING. INTERCONNECTING CONDUIT AND GAVANIZED CAST IRON JUNCTION BOX WITH TWO 1/2" N.P.T. HUBS AT 180

LENS: CLEAR, HEAT RESISTANT, TEMPERED, GLASS

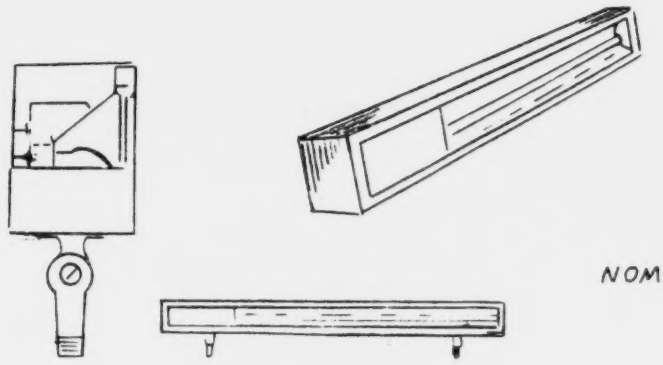
LAMP : 100 WATT INCANDESCENT CLEAR
LAMPHOLDER: MEDIUM BASE

REMARKS: 1. APPROX. 8" DIA., 14" HT. LIGHT FIXTURES' ANGLE OF TILT FROM VERTICAL SHALL BE AS DIRECTED AT TIME OF INSTALLATION.

2. COMPLETE ASSEMBLY SHALL BE WATER-TIGHT.

SEMI RECESSED WATER-TIGHT UP LIGHT

E
O-11



NOMINAL LENGTH 61"±

HOUSING: ONE PIECE EXTRUDED ALUMINUM MINIMUM OF 0.035 THICK.

LENS: CLEAR ACRYLIC WITH NEOPRENE GASKET.

DOOR: EXTRUDED ALUMINUM HINGED AT BOTTOM.

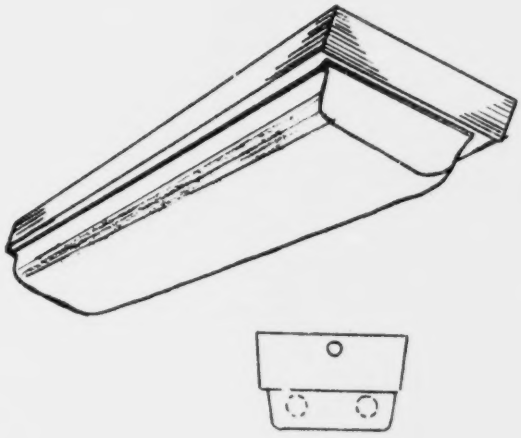
SWIVEL: CAST ALUMINUM GASKETED WITH ½"N.P.T. AND SET SCREW LOCK WITH 55° BACKTILT.

LAMP: F40 RAPID START T12 FLUORESCENT

BALLAST: 1-40WATT LOW TEMPERATURE

HEAVY DUTY ACCENT LIGHT

E
O-12



SURFACE MOUNTED, 2-LAMP, "ENCLOSED AND GASKETED" FLUORESCENT LIGHTING FIXTURE, NOMINALLY 4-FOOT IN LENGTH WITH CLEAR PLASTIC ENCLOSURE.

HOUSING: STEEL A MINIMUM OF 0.035" THICK; APPROPRIATE DEPRESSED KNOCKOUTS ON TOP FOR TIGHT GASKETED CEILING MOUNTING; END KNOCKOUTS OR GASKETED PLUGS FOR CONTINUOUS ROW MOUNTING; WIRING AND BALLAST ACCESSIBLE FROM BELOW; SUPPORT CLIPS FOR INTERNAL WIRING; THREADED STUD FOR GROUNDING.

REFLECTOR: WIREWAY COVER OR SEPARABLE REFLECTOR A MINIMUM OF 0.029" THICK STEEL, OR 0.040" THICK ALUMINUM; REMOVABLE WITHOUT SPECIAL TOOLS.

PLASTIC ENCLOSURE: CLEAR, 100% VIRGIN ACRYLIC PLASTIC DESIGNED TO RESIST MODERATE IMPACT; SMOOTH EXTERIOR SURFACE FOR CLEANING; RESILIENT GASKET; HINGED BY MINIMUM OF FOUR (4) STAINLESS STEEL CAM OR CLAMPING PRESSURE LATCHES.

FINISHES: HOUSING, BAKED WHITE ENAMEL; REFLECTING SURFACES, MINIMUM 85% REFLECTANCE BAKED WHITE ENAMEL.

LAMPS: TWO, F40, T-12, RAPID START FLUORESCENT.

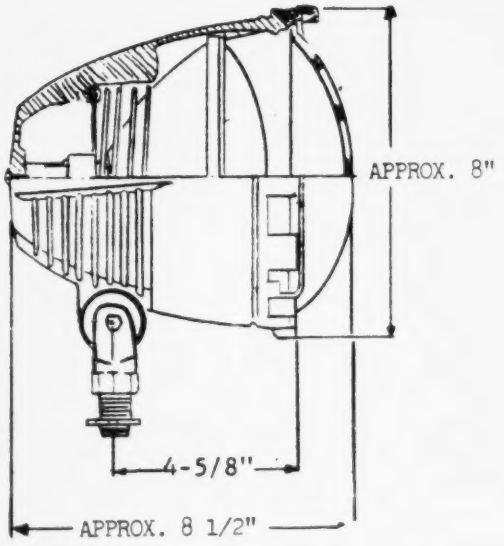
BALLAST: TWO-LAMP, HPF RAPID-START TYPE.

TYPE B: SAME CONSTRUCTION AS FIXTURE TYPE A EXCEPT WITH DIFFUSE ACRYLIC ENCLOSURE.

(NOTE - WHERE SYMBOL "(SS)" APPEARS FOLLOWING THE TYPE, HOUSING SHALL BE OF STAINLESS STEEL.)

SURFACE MOUNTED ENCLOSED AND GASKETED FLUORESCENT FIXTURE

E
0-13



HOUSING: DIE CAST ALUMINUM BODY WITH RIBBED HEAT SINK

LENS: CLEAR CONVEX HEAT-TEMPERED GLASS. FULLY GASKETED

LAMP HOLDER: PROCELAIN MOGUL END PRONG

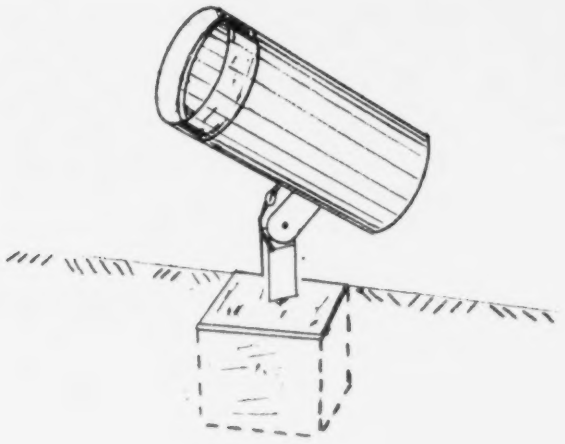
LAMP: 300 W. PAR-56 NSP (SPOT)

MOUNT: 1/2" NPT MALE WITH AIMING QUADRANT

NOTE: PROVIDE CAST ALUMINUM GLARE SHIELD

E
O-14

OUTDOOR SPOTLIGHT



CONSTRUCTION: RUGGED, UTITIZED CAST ALUMINUM HOUSING WITH INTEGRAL BAFFLES.

HOUSING: CORROSION RESISTANT, CAST ALUMINUM OF 0.18" MINIMUM WALL THICKNESS. SIZE APPROX. 7½" DIA X 16" HIGH.

BALLAST ENCLOSURES: CAST ALUMINUM OF 0.15" MINIMUM WALL THICKNESS...PROVIDED WITH A GASKETED, REMOVABLE COVER FOR EASY ACCESS TO ELECTRICAL COMPONENTS.

FINISH: DARK BRONZE.

LAMPHOLDER: PORCELAIN, MEDIUM BASE, PREWIRED WITH SF LEADS.

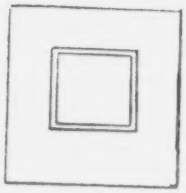
BALLAST DATA: CONSTANT WATTAGE, HIGH POWER FACTOR, 180°C. CLASS H AUTO-TRANSFORMER TYPE,

LAMP: MEDIUM BASE 175W R40 FLOOD.

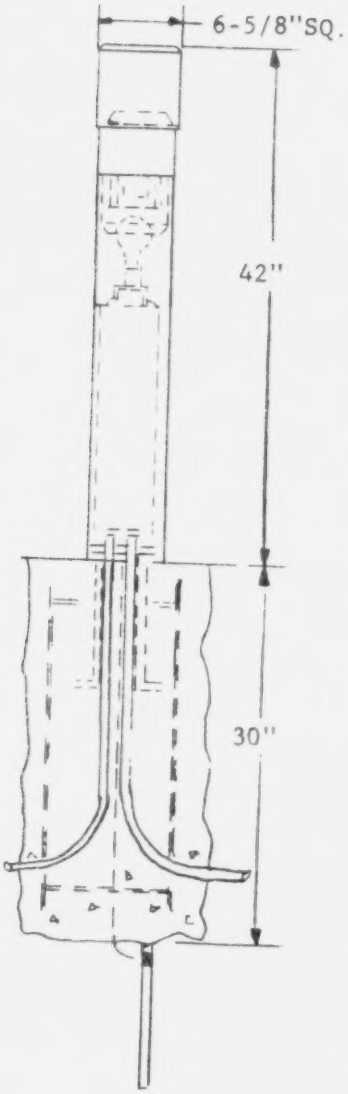
BRACKET: 180° ADJUSTABLE ROTATION. FIRMLY SECURED INTO REQUIRED POSITION.

FLOOD LIGHT MERCURY VAPOR

E
O-15



CONCRETE BASE



HOUSING: EXTRUDED ANODIZED ALUMINUM

FINISH: TO BE SELECTED BY ARCHITECT

LENS: POLY CARBONATE 1/4" THICK

LAMP: 100W MERCURY VAPOR DELUXE WHITE

BALLAST: CORE AND COIL

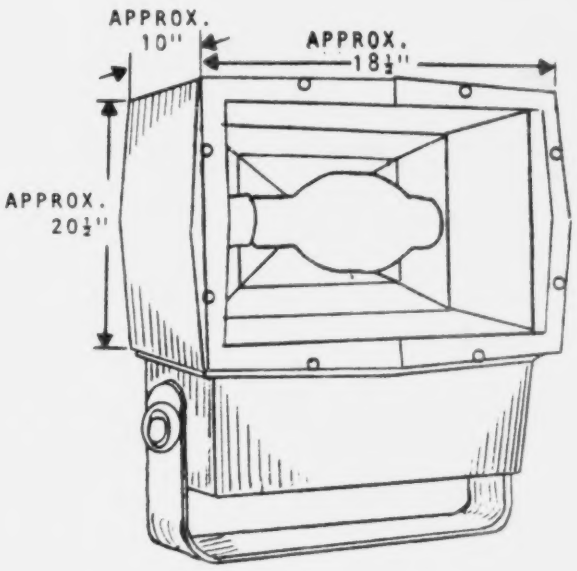
REFLECTOR: COLLECTOR AND LOUVER DISTRIBUTION

ANCHOR BOLTS: THREE 1/2" X 12" on 4-5/8" BOLT CIRCLE.

MOUNTING: CONCRETE BASE 15" SQUARE, 30" DEEP. FLUSH WITH SURFACE.

E
O-16

OUTDOOR SQUARE BOLLARD

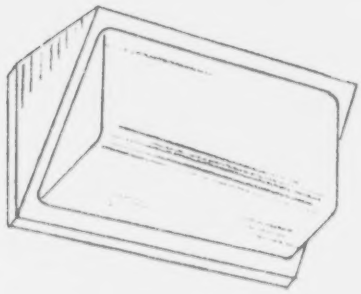


HOUSING	Cast aluminum - hinged door for front relamping.
MOUNTING	Steel trunnion with aiming quadrant
LENS	Heat and impact resisting glass
LAMP	400W mercury vapor - deluxe white
BALLAST	Reactor type - high power factor for 277 volts

NOTE: WATERTIGHT GLAND FOR CABLE ENTRANCE

AREA FLOOD LIGHT

E
0-17



HOUSING: DIE-CAST ALUMINUM WITH CAST-IN KNOCK-OUTS FOR MOUNTING HOLES AND FOR ALIGNMENT WITH RECESSED CAST OUTLET BOX.

LENS FRAME: DIE CAST ALUMINUM WITH INTEGRAL HINGES. GASKET SHALL BE SILICONE RUBBER AND SHALL PROVIDE CONTINUOUS INTERFACE BETWEEN LENS FRAME AND HOUSING.

REFRACTOR: ONE-PIECE HEAT AND SHOCK RESISTANT BOROSILICATE GLASS PERMANENTLY BOUNDED TO LENS FRAME, WITH PRISMATIC INTERIOR AND EXTERIOR SURFACES.

REFLECTOR: TEXTURED-SPECULAR ANODIZED ALUMINUM, ASYMMETRIC DESIGN, DIRECTING LIGHT VERTICALLY INTO 0-60 ZONE.

FINISH: DARK BRONZE ANODIZED ALUMINUM FINISH.

BALLAST (MERCURY UNITS ONLY): CONSTANT WATTAGE HIGH POWER FACTOR BALLAST MOUNTED INTERNALLY IN CAST BACK.

SOCKET: MOGUL BASE, GLAZED PORCELAIN WITH NICKEL PLATED SCREW SHELL AND SPRING-LOADED CENTER CONTACT.

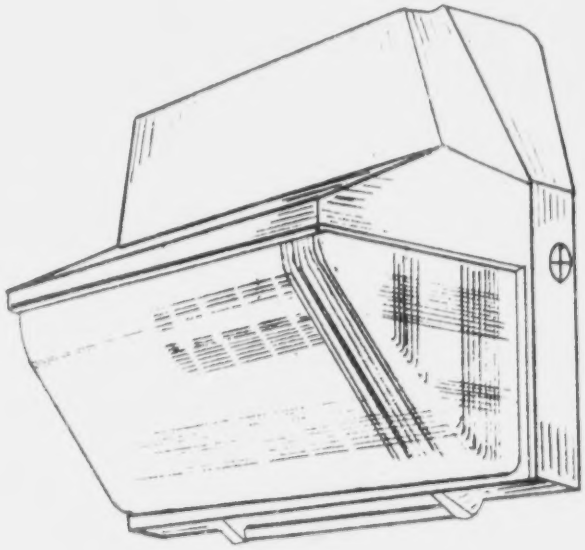
CONTROL: AUTOMATIC TIME-DELAY PHOTO CONTROL ACCESSORY.

LAMP: 100W DELUXE WHITE MERCURY VAPOR OR GENERAL SERVICE INCANDESCENT.

SIZE: APPROXIMATE 17" x 9" x 9".

OUTDOOR WALL MOUNTED INCAN/M.V. FIXTURE.

E
0-18



HOUSING: Cast aluminum; divided into lamp and ballast compartments; knockouts for outlet box mounting; tapped 3/4" conduit side fittings for service wiring; provision for top-mounted optional photocell control.

REFLECTOR: Formed aluminum; specular Alzak (or equal) finish.

REFRACTOR: Prismatic glass; secured with gasket in door frame.

DOOR: Cast alumimun; hinged for lamp and ballast servicing; retention strap or chain; gasketed for weather and insect seal; stainless steel or equivalent corrosion resistant latch(s).

FINISH: Natural aluminum, or weather resistant painted bronze or black.

LAMP: 250 watt, Deluxe white mercury vapor.

BALLAST: Integral type; HPF; CWA.

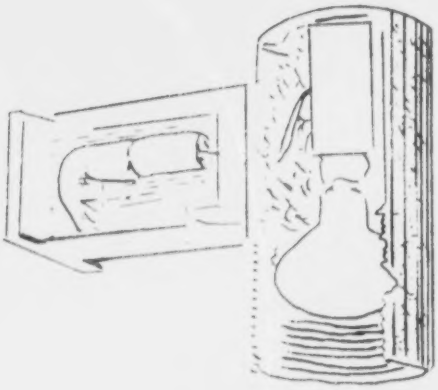
DISTRIBUTION: Fan shaped; approximately 2 footcandles at grade level, 20 ft. normal to the unit, with 15 ft. mounting height; vertical cut-off approximately 50% of maximum intensity at 80° above nadir on the normal axis.

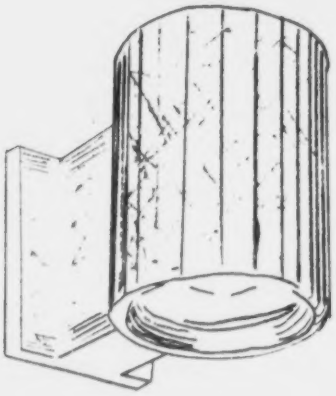
PHOTOCELL CONTROL: Shall be top mounted; directional; and shielded from fixture light; delayed response for transient light changes.

APPROXIMATE SIZE: 17" x 9" x 9".

E
O-19

EXTERIOR WALL BRACKET FIXTURE





CONSTRUCTION: RUGGED, UNITIZED CAST ALUMINUM HOUSING WITH INTEGRAL BAFFLES.

HOUSING: CORROSION RESISTANT, CAST ALUMINUM OF 0.18 " MINIMUM WALL THICKNESS. SIZE APPROX. 7½" DIA. X 10" HIGH.

BALLAST ENCLOSURES: CAST ALUMINUM OF 0.15 " MINIMUM WALL THICKNESS... PROVIDED WITH A GASKETED, REMOVABLE COVER FOR EASY ACCESS TO ELECTRICAL COMPONENTS.

FINISH: DARK BRONZE

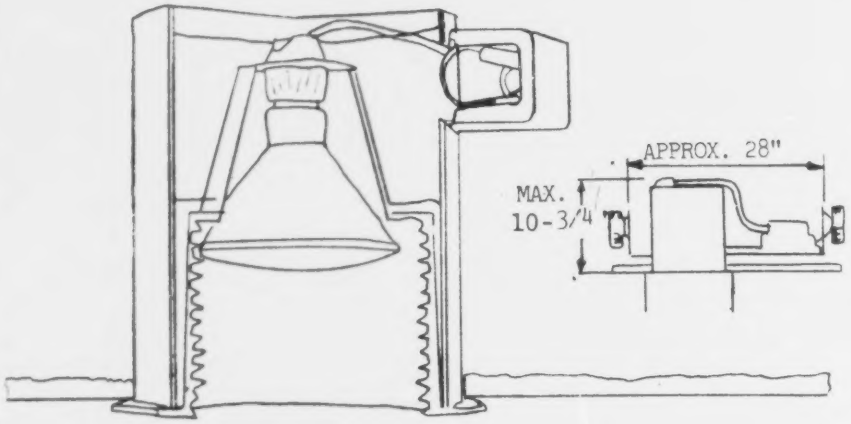
LAMPHOLDER: PORCELAIN, MEDIUM BASE, PREWIRED WITH SF LEADS.

BALLAST: CONSTANT WATTAGE, HIGH POWER FACTOR, 180°C. CLASS H AUTO TRANSFORMER TYPE.

LAMP: MEDIUM BASE 100W R40 FLOOD.

WALL MOUNTED MERCURY VAPOR OUTDOOR LIGHT FIXTURE

E
020



HOUSING: STEEL WITH INTERNAL CAST ALUMINUM BAFFLE.

TRIM: INTEGRAL TRIM RING ANODIZED ALUMINUM.

LAMP: 1-100W MERCURY VAPOR R40 DELUXE WHITE.

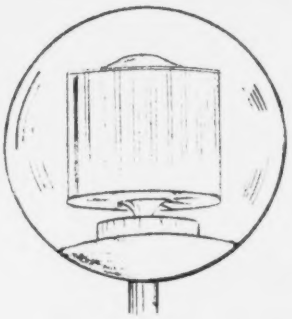
BALLAST: HPF - CONSTANT WATTAGE 60 HERTZ.

NOTE: FIXTURE SHALL BE REMOVABLE THRU CEILING OPENING AND SHALL HAVE UL LABEL FOR DAMP LOCATIONS.

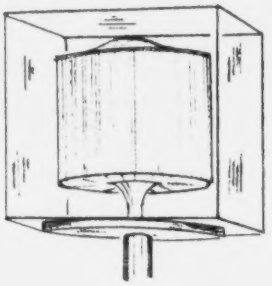
RECESSED MERCURY VAPOR - OUTDOOR

E
0-21

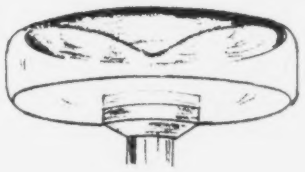
POLE



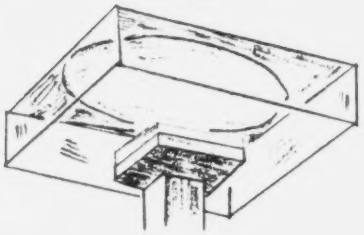
SPHERE



CUBE



ROUND



SQUARE

LUMINAIRES

LUMINAIRE: Cast aluminum lamp/ballast housing supports one piece, seamless, impact resistant clear acrylic enclosure gasketed for dust-tight, bug-tight and weather-tight operation.

REFLECTOR: Shall be either a spun aluminum Alzak reflector or a combination of reflector with an extruded clear acrylic cylindrical spreading lens.

POLE: Straight seamless aluminum extruded, to accept internally the cast aluminum luminaire support.

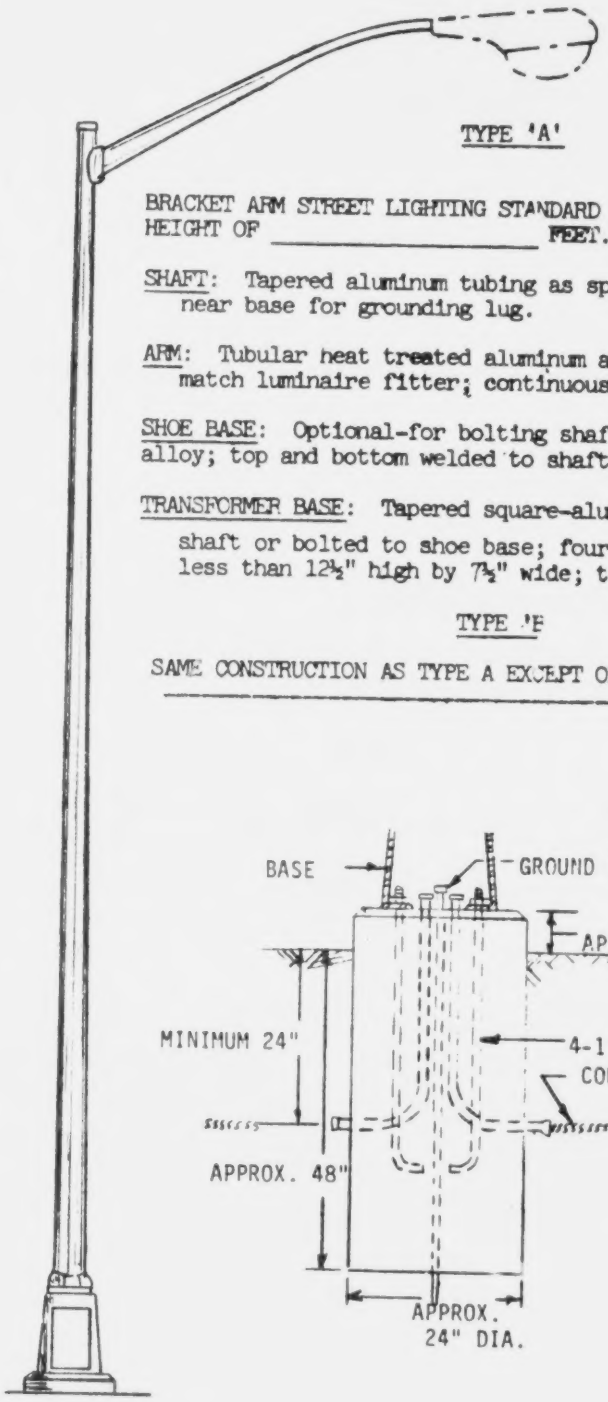
FINISH: Housing support: bronze duranodic or a baked polyester paint coating over corrosion resistant primer; pole and base: bronze duranodic or an approved equal.

LAMPS: _____ watts, E-_____, deluxe white mercury vapor, or
_____ watts, E-_____, clear metal halide, or
_____ watts, E-_____, high pressure sodium.

BALLAST: High power factor, CWA (HPS-LAG type), -20 degrees F temperature located in the luminaire housing or bracketed within pole top.

POST TOP LIGHTING UNIT

E
0-22



TYPE 'A'

BRACKET ARM STREET LIGHTING STANDARD AND BASE FOR SUPPORT OF A LUMINAIRE AT A HEIGHT OF _____ FEET.

SHAFT: Tapered aluminum tubing as specified; aluminum top cap; tapped hole near base for grounding lug.

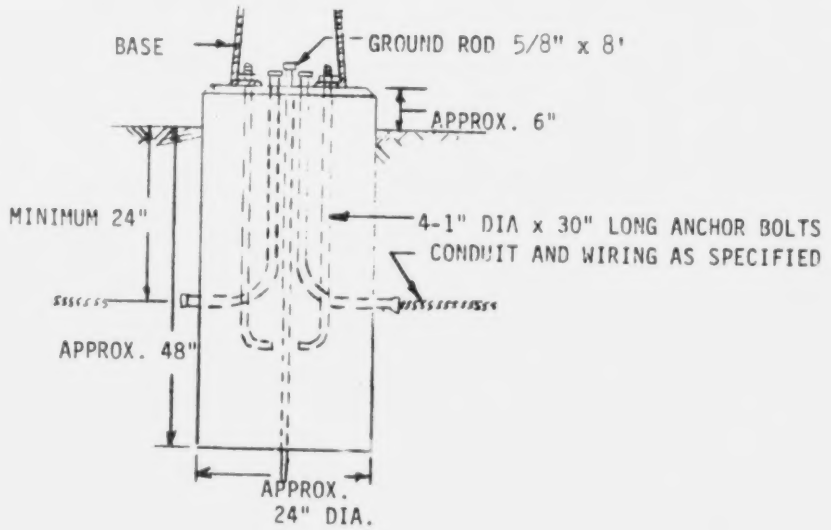
ARM: Tubular heat treated aluminum alloy; length as required; shank size to match luminaire fitter; continuously welded mounting plate and hardware.

SHOE BASE: Optional-for bolting shaft to transformer base; cast aluminum alloy; top and bottom welded to shaft; bolt holes; bolt covers; hardware.

TRANSFORMER BASE: Tapered square-aluminum; approximately 20" high; welded to shaft or bolted to shoe base; four (4) base mounting lugs; access door-not less than 12½" high by 7½" wide; tapped hole for grounding lug.

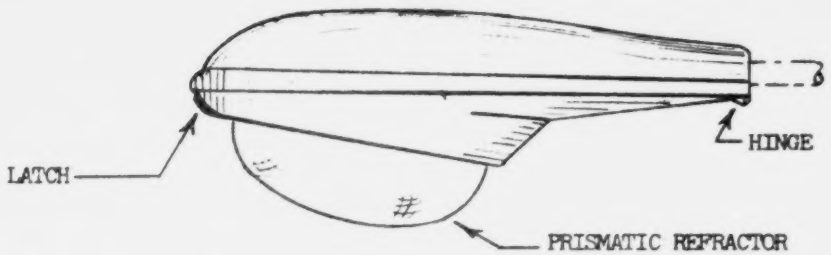
TYPE 'E'

SAME CONSTRUCTION AS TYPE A EXCEPT OF TWIN BRACKET ARM DESIGN.



E
0-23

POLE & BASE



TYPE 'A'

MERCURY VAPOR ROADWAY LUMINAIRE OF ENCLOSED TYPE FOR SIDE MOUNTING AND DESIGNED TO PROVIDE THE REQUIRED IES LIGHT DISTRIBUTIONS.

HOUSING: Two piece, of cast aluminum; oval shape; with lower portion hinged.

REFLECTOR: Formed aluminum; specular Alzak (or equal) finish; mounted to upper housing; rim gasket to seal against refractor and lower housing.

REFRACTOR: Prismatic boro-silicate glass to provide required I.E.S. light distribution; secured in lower housing by clamping ring and clips.

DOOR: Hinged lower portion of housing, positive action latch to compress reflector gaskets; non-cast metal of hinge, latch, and associated hardware to be stainless steel.

FITTER: For standard 1¼" to 2" pipe sizes with leveling device.

BALLAST: Integral type; HPF; Regulator type (Multiple), or constant current type (Series); mounted to upper and/or lower housing; wired to a terminal block and lampholder.

LAMPHOLER: Porcelain body; mogul nickle-plated screw shell; adjustable for lamp positioning.

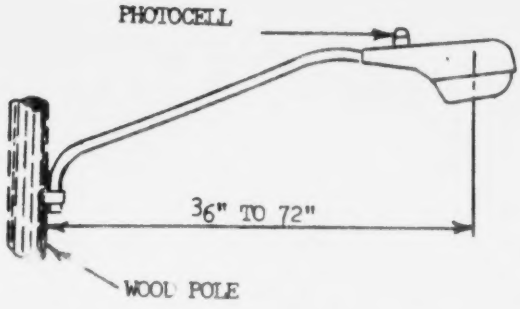
LAMP: 400 watt H33 mercury vapor.

TYPE 'B'

SAME CONSTRUCTION AS TYPE 'A' EXCEPT DESIGNED TO OPERATE WITH A 250 WATT H37 MERCURY LAMP.

(DESIGNER'S NOTE: Types A and B may be specified to operate with these optional features: Multi-vapor lieu of integral type; photocell control in top-mount receptacle.)

E
0-24



HOUSING: TWO PIECE, OF CAST ALUMINUM; OVAL SHAPE; WITH LOWER PORTION HINGED.

REFLECTOR: FORMED ALUMINUM; SPECULAR ALZAK (OR EQUAL) FINISH; MOUNTED TO UPPER HOUSING; RIM GASKET TO SEAL AGAINST REFRACTOR AND LOWER HOUSING.

REFRACTOR: PRISMATIC BORO-SILICATE GLASS TO PROVIDE REQUIRED I.E.S. LIGHT DISTRIBUTION; SECURED IN LOWER HOUSING BY CLAMPING RING AND CLIPS.

DOOR: HINGED LOWER PORTION OF HOUSING; POSITIVE ACTION LATCH TO COMPRESS REFLECTOR GASKETS; NON-CAST METAL OF HINGE, LATCH, AND ASSOCIATED HARDWARE TO BE STAINLESS STEEL.

BALLAST: INTEGRAL TYPE; HPF; REGULATOR TYPE (MULTIPLE); MOUNTED TO UPPER AND/OR LOWER HOUSING; WIRED TO A TERMINAL BLOCK AND LAMPHOLDER.

LAMPHOLDER: PORCELAIN BODY; MOGUL NICKLE-PLATED SCREW SHELL; ADJUSTABLE FOR LAMP POSITIONING.

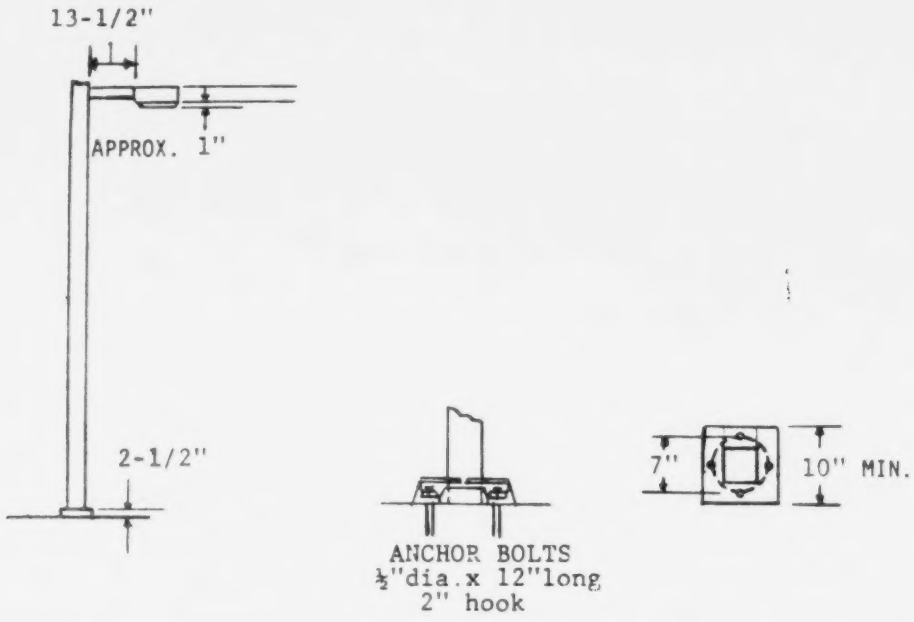
LAMP: 400 WATT H33 MERCURY VAPOR.

ARM: TUBULAR HEAT TREATED ALUMINUM ALLOY; LENGTH AS REQUIRED; SHANK SIZE TO MATCH LUMINAIRE FITTER; CONTINUOUSLY WELDED MOUNTING PLATE AND HARDWARE.

PHOTOCELL CONTROL: SHALL BE THE QUICK RESPONSE CADMIUM SULFIDE TYPE.

ROADWAY LUMINARE WITH ARM

E
0-25



HOUSING: Approximately 13" square by 5" deep; cast or one-piece extruded aluminum; supported by rectangular extruded aluminum bracket arm, approximately 13" long.

REFLECTOR: Formed aluminum anodized; semispecular or high temperature, high reflectance white paint.

LENS: Dropped dish, one-piece, injection molded, clear UV stabilized polycarbonate refractor; approximate circular light distribution diminishing to 1/5 the maximum intensity on the ground at a distance between fixture and two times the mounting height; gasketed and retained by stainless steel hardware.

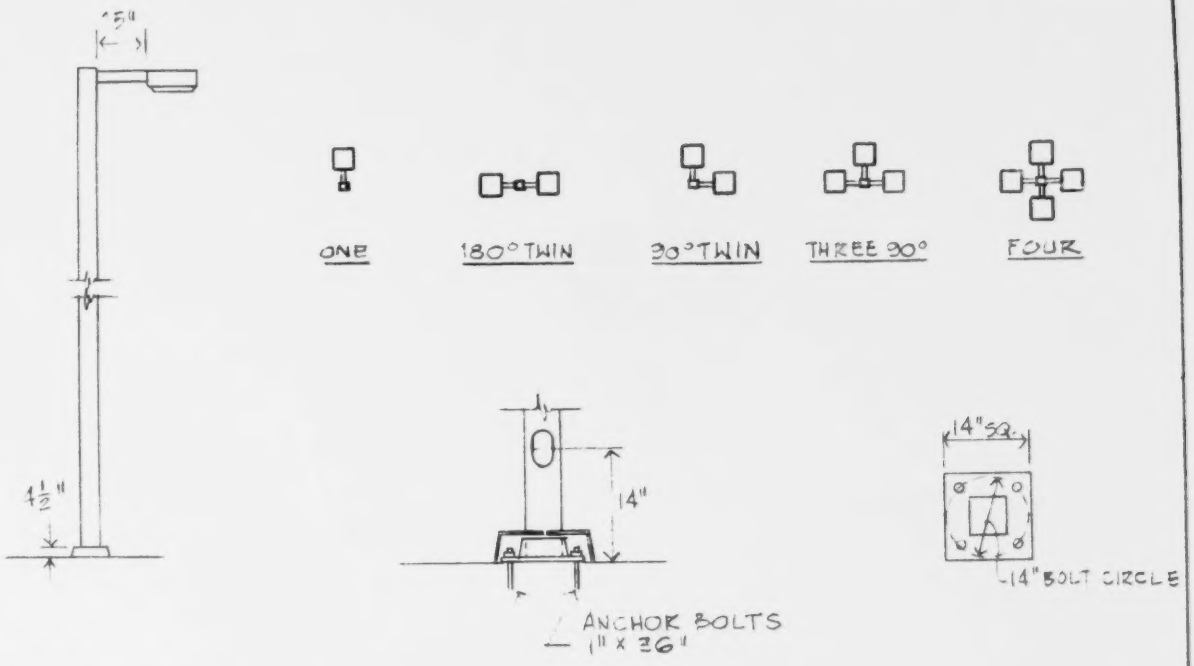
POLE: One-piece seamless aluminum extrusion; minimum 4" square; length _____; welded to square (4 bolt) cast base with finished cover.

FINISH: Housing; bronze, duranodic or a baked polyester point coating over corrosion resistent primer: pole, bracket and hinged base; bronze, duranodic (or approved equal).

LAMP: ___watts,E-___, deluxe white mercury vapor. or
___watts,E-___, clear metal halide, or
___watts,E-___, high pressure sodium.

BALLAST: High power factor, CWA (HPS-LAG Type), -20 degree F temperature located in the luminaire housing or bracketed within the pole top.

WALKWAY LIGHTING UNIT



HOUSING: Approximately 24" square by 8" deep; cast or one-piece extruded aluminum; supported by rectangular extruded aluminum bracket arm, approximately 15" long.

REFLECTOR: Formed aluminum anodized; semispecular or high temperature, high reflectance white paint.

LENS: Dropped dish, one-piece, injection molded, clear UV stabilized polycarbonate refractor; approximate circular light distribution diminishing to 1/5 the maximum intensity on the ground at a distance between fixture and two times the mounting height; gasketed and retained by stainless steel hardware.

POLE: One-piece seamless aluminum extrusion; minimum 4" square; length _____; welded to square (4 bolt) cast base with finished cover.

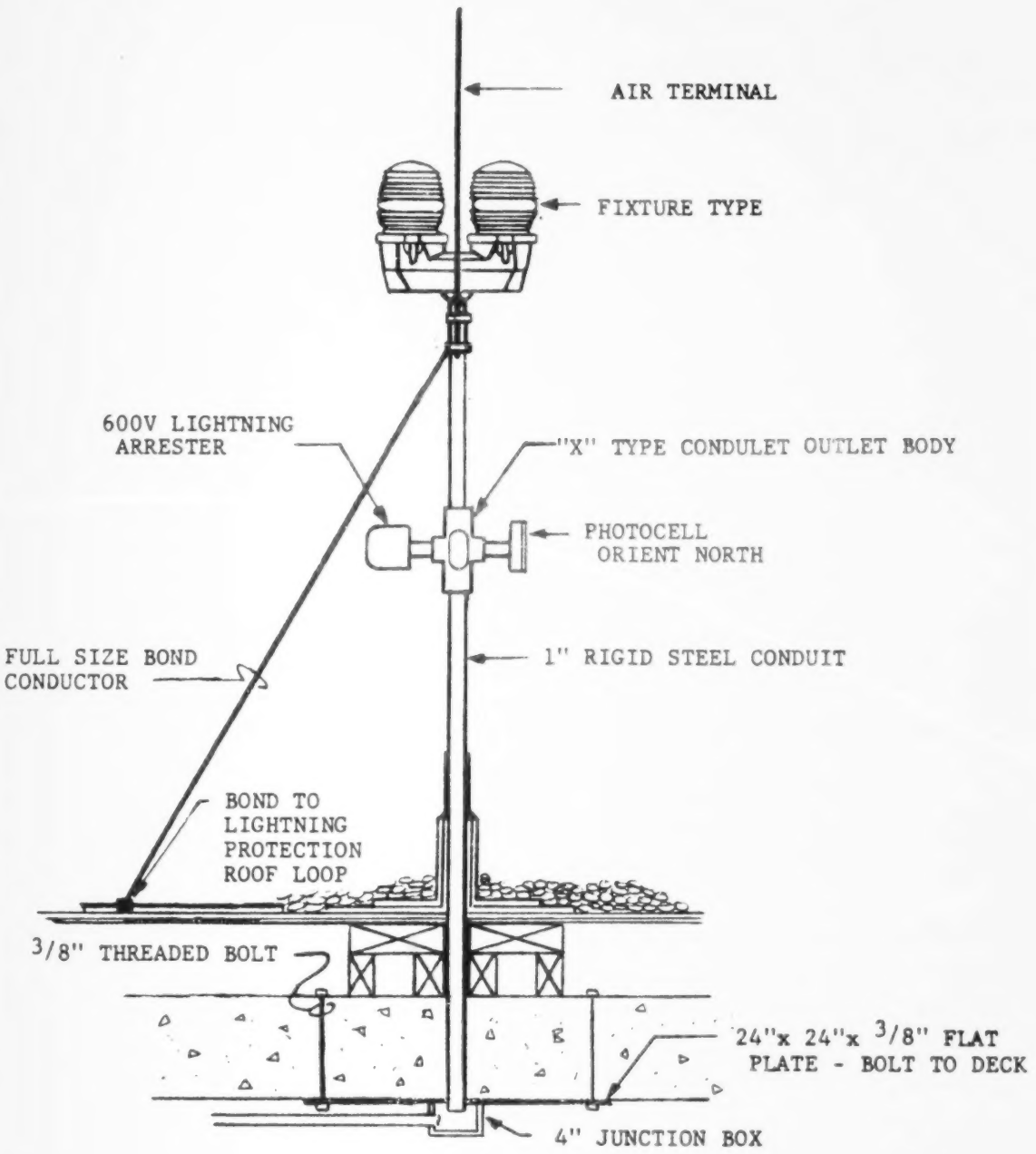
FINISH: Housing; bronze, duranodic or a baked polyester paint coating over corrosion resistent primer: pole, bracket and hinged base; bronze, duranodic (or approved equal).

LAMP: ____watt, E-__, deluxe white mercury vapor. or
____watt, E-__, clear metal halide, or
____watt, E-__, high pressure sodium.

BALLAST: High power factor, CWA (HPS-LAG Type), -20 degree F temperature located in the luminaire housing or bracketed within the pole top.

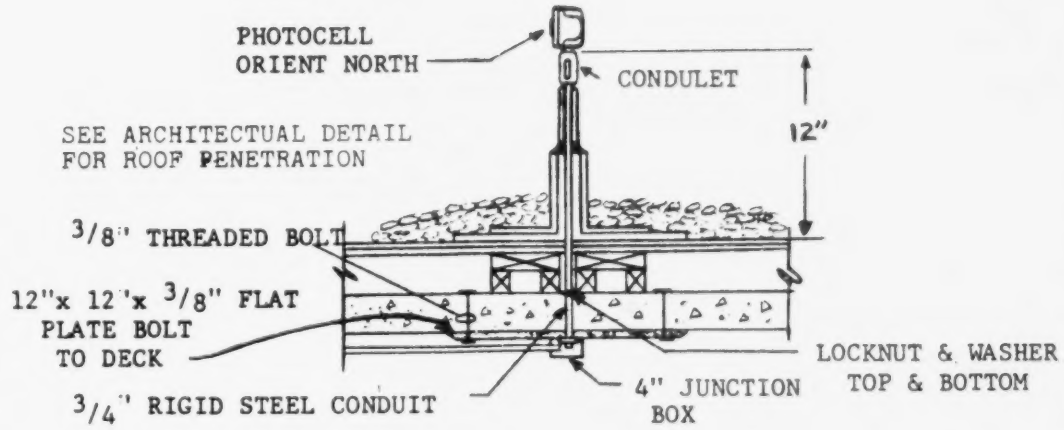
ROADWAYS AND PARKING AREA LIGHTING UNIT

E
0-27


AIR TERMINAL
FIXTURE TYPE
600V LIGHTNING ARRESTER
"X" TYPE CONDULET OUTLET BODY
PHOTOCELL ORIENT NORTH
FULL SIZE BOND CONDUCTOR
1" RIGID STEEL CONDUIT
BOND TO LIGHTNING PROTECTION ROOF LOOP
3/8" THREADED BOLT
24"x 24"x 3/8" FLAT PLATE - BOLT TO DECK
4" JUNCTION BOX

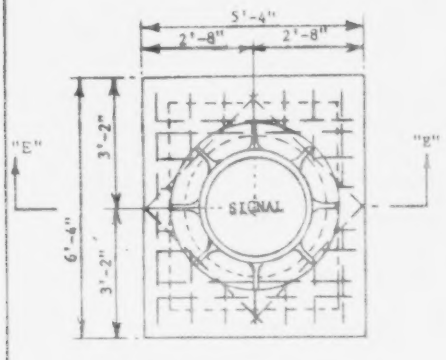
OBSTRUCTION LIGHT MOUNTING DETAIL

E
O-28

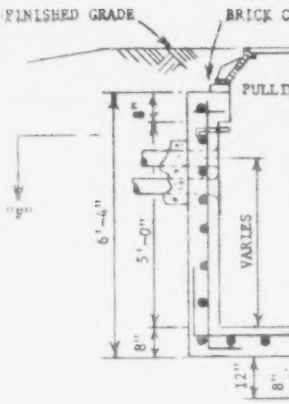


PHOTOCELL MOUNTING DETAIL

E
0-29



TOP VIEW



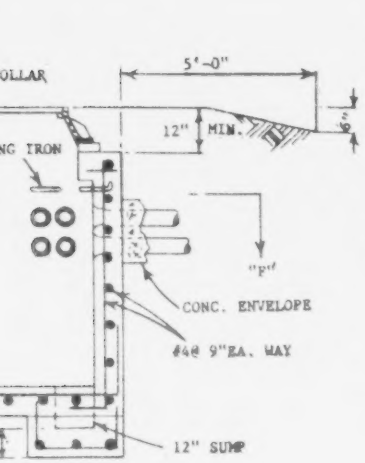
SECT

STRUCTURAL NOTES

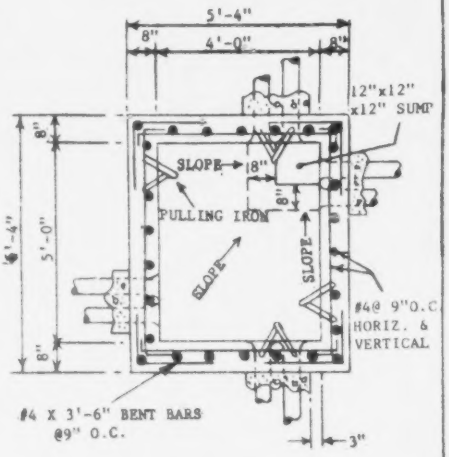
1. ALL REINFORCEMENT BARS FOR MANHOLES AND HANDHOLES SHALL BE #4.
2. TOP SLAB REINFORCEMENT CONSISTS OF BOTTOM BARS PLACED AS SHOWN. SHORT SPAN BARS SHALL BE ON THE BOTTOM LAYER.
3. BEND AND PLACE ALL REINFORCEMENT SO THAT IT SHALL BE 2" CLEAR OF ALL EXTERIOR SURFACES, 1-1/2" CLEAR OF ALL INTERIOR AND FLOOR SURFACES AND 1" CLEAR OF BOTTOM SURFACES OF TOP SLAB.
4. STRUCTURES SHALL BE OF REINFORCED CONCRETE. CONCRETE SHALL BE 3,000 P.S.I. AT 28 DAYS UNLESS OTHERWISE SPECIFIED.

SI

SIGNAL CABINET DETAILS



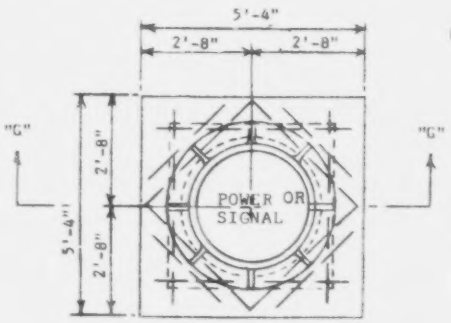
ION "E"-"E"



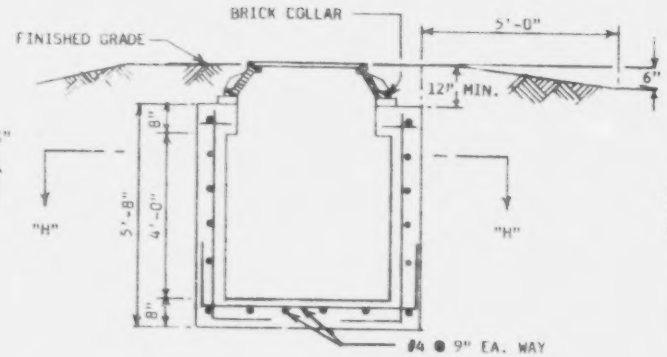
SECTION "F"-"F"

GNAL MANHOLE

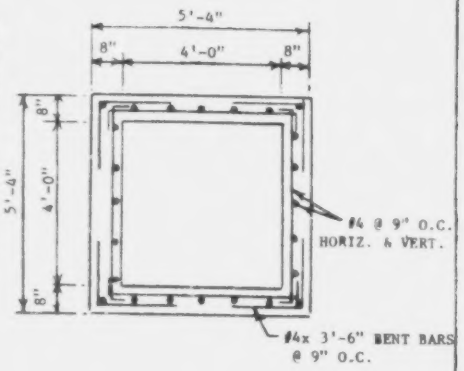
E
B-1



HANDHOLE



SECTION "G"-"G"



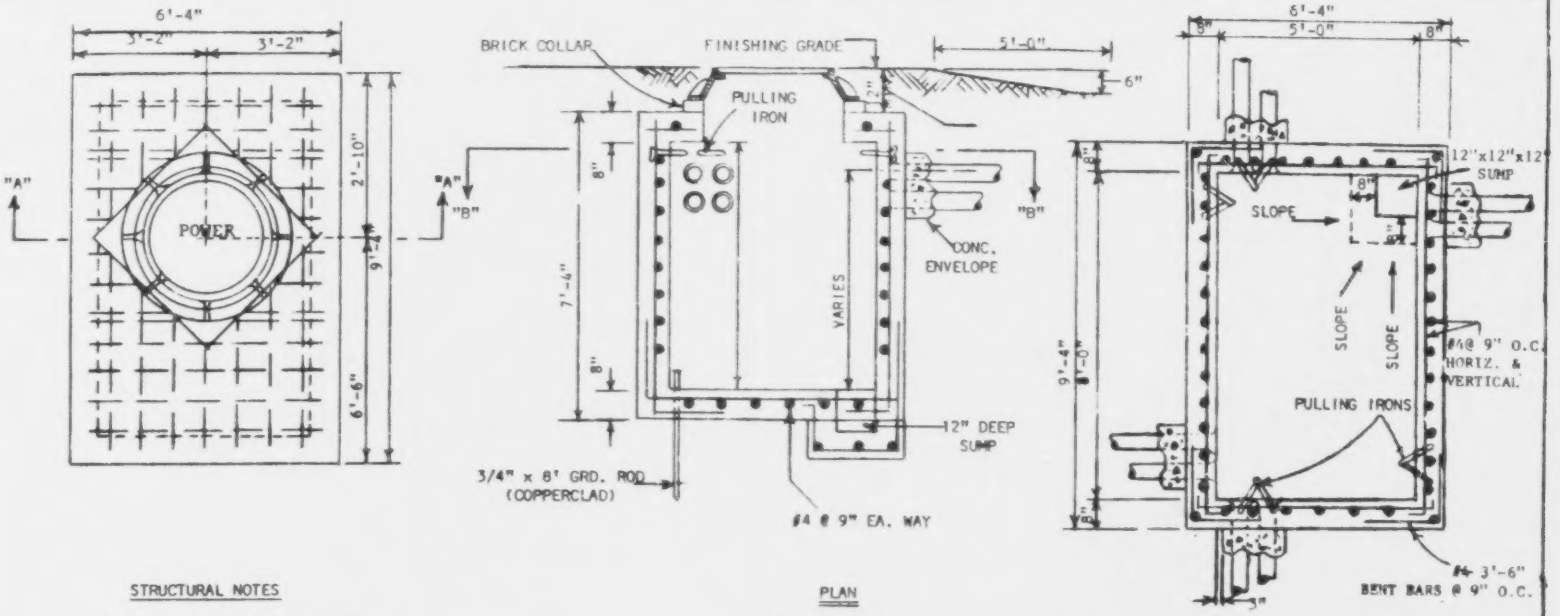
SECTION "H"-"H"

STRUCTURAL NOTES

1. ALL REINFORCEMENT BARS FOR MANHOLES AND HANDHOLES SHALL BE #4.
2. TOP SLAB REINFORCEMENT CONSISTS OF BOTTOM BARS PLACED AS SHOWN. SHORT SPAN BARS SHALL BE ON THE BOTTOM LAYER.
3. BEND AND PLACE ALL REINFORCEMENT SO THAT IT SHALL BE 2" CLEAR OF ALL EXTERIOR SURFACES, 1-1/2" CLEAR OF ALL INTERIOR AND FLOOR SURFACES AND 1" CLEAR OF BOTTOM SURFACES OF TOP SLAB.
4. STRUCTURES SHALL BE OF REINFORCED CONCRETE. CONCRETE SHALL BE 3,000 P.S.I. AT 28 DAYS UNLESS OTHERWISE SPECIFIED.

STRUCTURAL DETAIL FOR HANDHOLES

E
B-2



PLAN

POWER MANHOLE

STRUCTURAL NOTES

(for manholes and handholes)

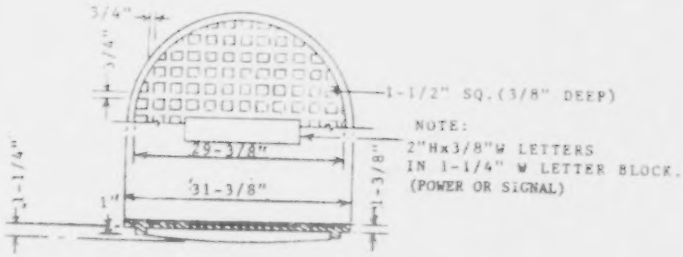
1. ALL REINFORCEMENT BARS FOR MANHOLES AND HANDHOLES SHALL BE #4.
2. TOP SLAB REINFORCEMENT CONSISTS OF BOTTOM BARS PLACED AS SHOWN. SHORT SPAN BARS SHALL BE ON THE BOTTOM LAYER.
3. BEND AND PLACE ALL REINFORCEMENT SO THAT IT SHALL BE 2" CLEAR OF ALL EXTERIOR SURFACES, 1-1/2" CLEAR OF ALL INTERIOR AND FLOOR SURFACES AND 1" CLEAR OF BOTTOM SURFACES OF TOP SLAB.
4. STRUCTURES SHALL BE OF REINFORCED CONCRETE. CONCRETE SHALL BE 3,000 P.S.I. AT 28 DAYS UNLESS OTHERWISE SPECIFIED.

ELECTRICAL NOTES

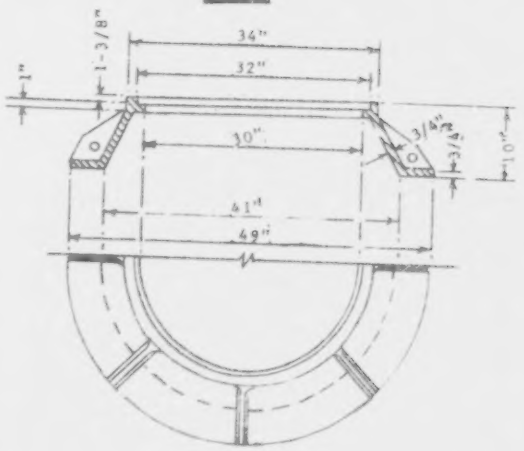
1. MANHOLE SIZES SHALL BE INCREASED MINIMUM TO 8'-0" WIDE 12'-0" LONG AND 7'-6" DEEP WHERE PERFORMED ELBOWS ARE USED.

E
B-3

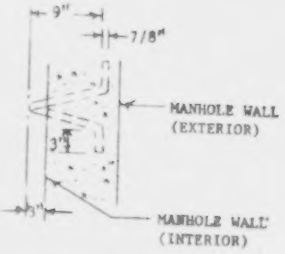
POWER MANHOLE DETAILS



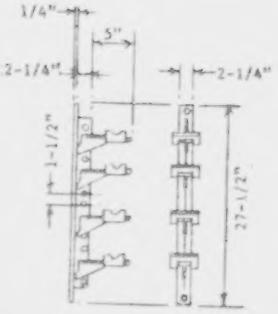
COVER



FRAME

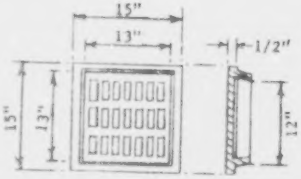


PULLING IRON



CABLE RACK

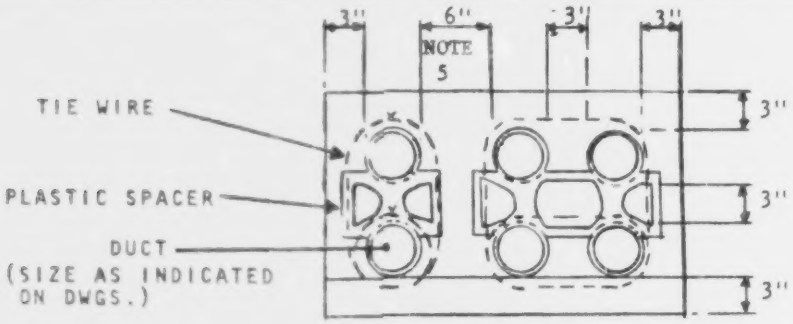
NOTE: FASTEN TO ALL WALLS OF MANHOLE
BY MEANS OF 2-1/2" x 1/2" BOLTS
& EXPANSION SHIELDS



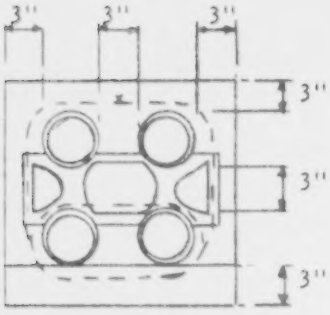
SUMP FRAME & COVER

MANHOLE HARDWARE

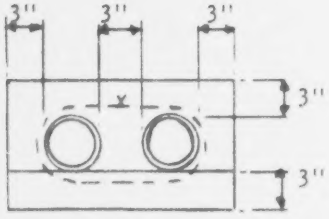
E
B-4



6- WAY DUCT LINE



4- WAY DUCT LINE



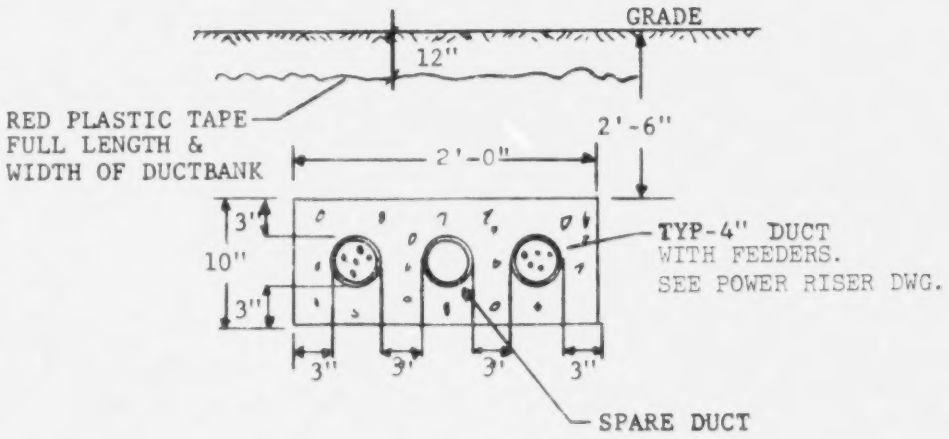
2- WAY DUCT LINE

DUCT LINE NOTES:

1. CONCRETE SHALL BE 3,000 P.S.I. @ 28 DAYS OR AS SPECIFIED.
2. PROVIDE REINFORCING RODS ON TOP OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
3. MINIMUM COVER TO TOP OF ENVELOPE SHALL BE 24"
4. NON-FERROUS TIE WIRES TO BE IMBEDED IN DUCT BED CONCRETE.
5. PROVIDE MINIMUM 6" SPACE BETWEEN POWER AND SIGNAL DUCTS. INCREASE SIZE AS REQUIRED.

DUCT BANK DETAILS

E
B-5

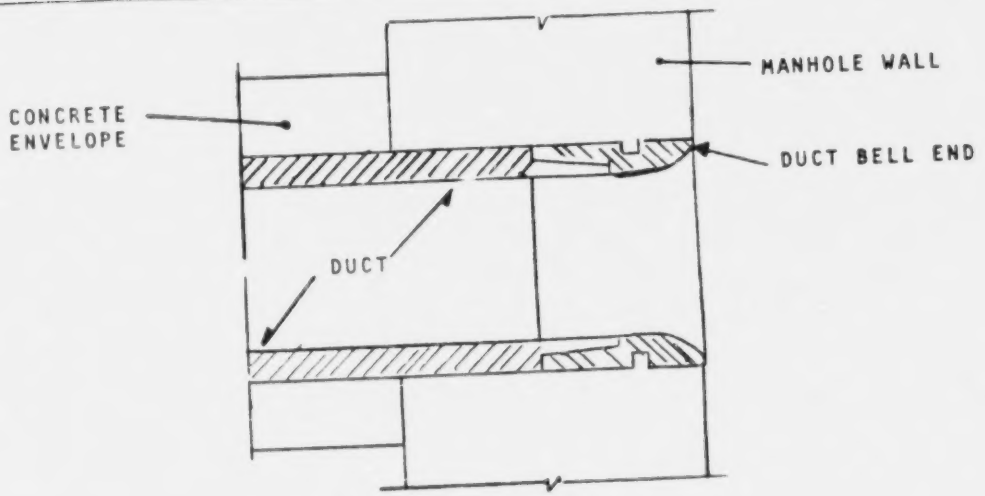


NOTE

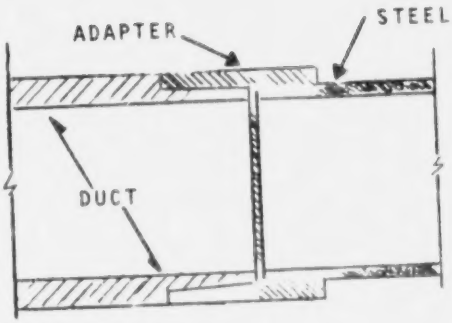
1. DETAIL SHOWN IS FOR 4" DUCT. SEE SPECIFICATIONS AND DRAWINGS FOR EXACT SIZE.

DETAIL "B" - 3 WAY POWER DUCTBANK

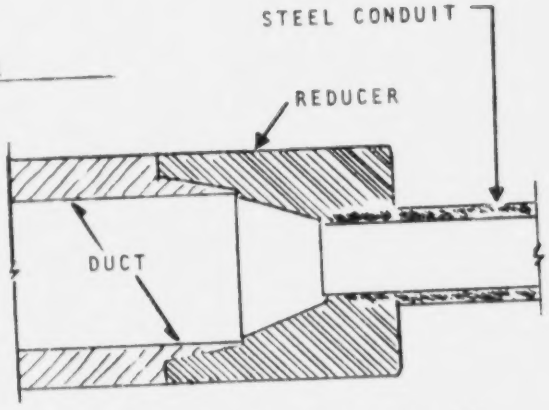
E
B-6



DUCT LINE ENTRANCE



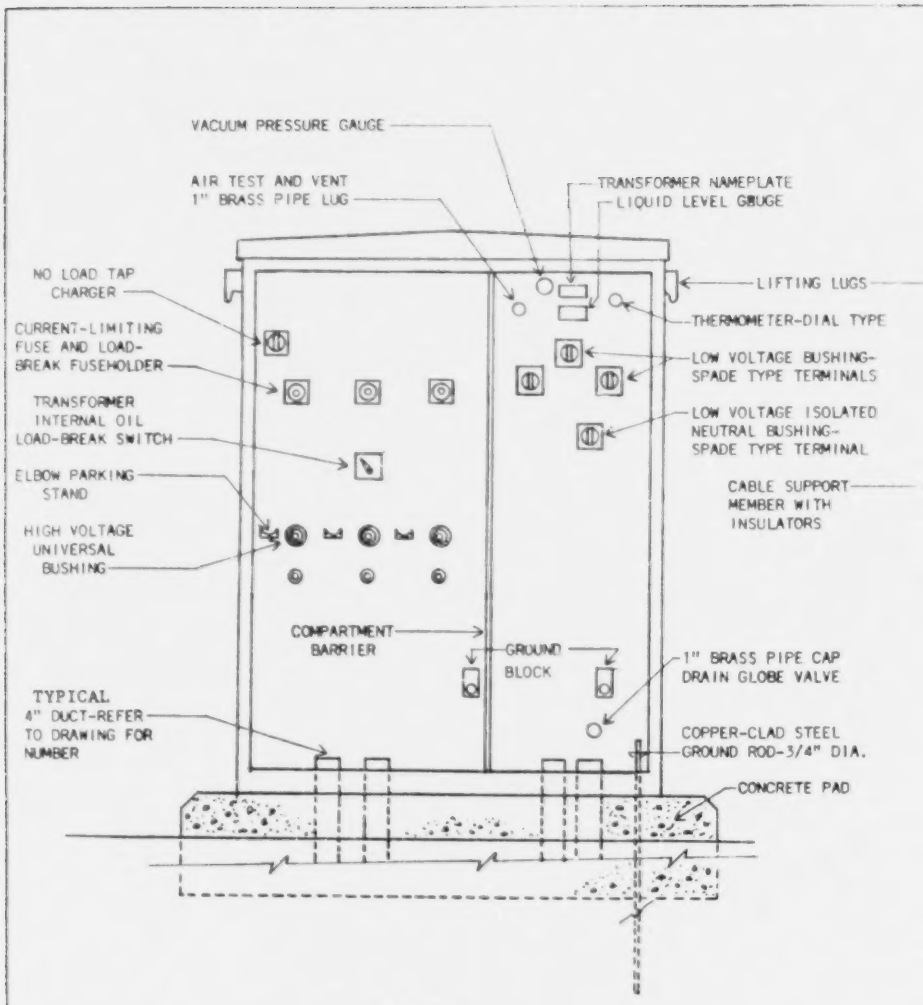
DUCT TO STEEL CONDUIT ADAPTER



DUCT TO STEEL CONDUIT REDUCES

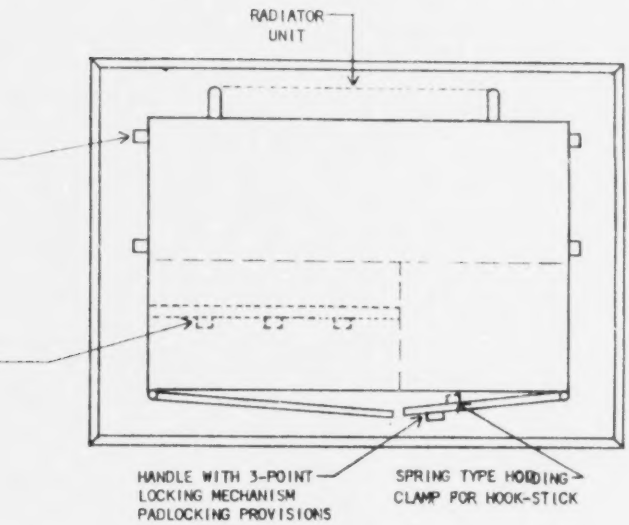
DUCT LINE DETAILS

E
B-7


VACUUM PRESSURE GAUGE
AIR TEST AND VENT
1" BRASS PIPE LUG
TRANSFORMER NAMEPLATE
LIQUID LEVEL GAUGE
NO LOAD TAP CHARGER
LIFTING LUGS
THERMOMETER-DIAL TYPE
CURRENT-LIMITING FUSE AND LOAD-BREAK FUSEHOLDER
LOW VOLTAGE BUSHING-SPADE TYPE TERMINALS
TRANSFORMER INTERNAL OIL LOAD-BREAK SWITCH
LOW VOLTAGE ISOLATED NEUTRAL BUSHING-SPADE TYPE TERMINAL
ELBOW PARKING STAND
CABLE SUPPORT MEMBER WITH INSULATORS
HIGH VOLTAGE UNIVERSAL BUSHING
COMPARTMENT BARRIER
GROUND BLOCK
1" BRASS PIPE CAP DRAIN GLOBE VALVE
TYPICAL 4" DUCT-REFER TO DRAWING FOR NUMBER
COPPER-CLAD STEEL GROUND ROD-3/4" DIA.
CONCRETE PAD

ELEVATION

DETAIL PADMOUNTED TRANSFORMER



PLAN VIEW

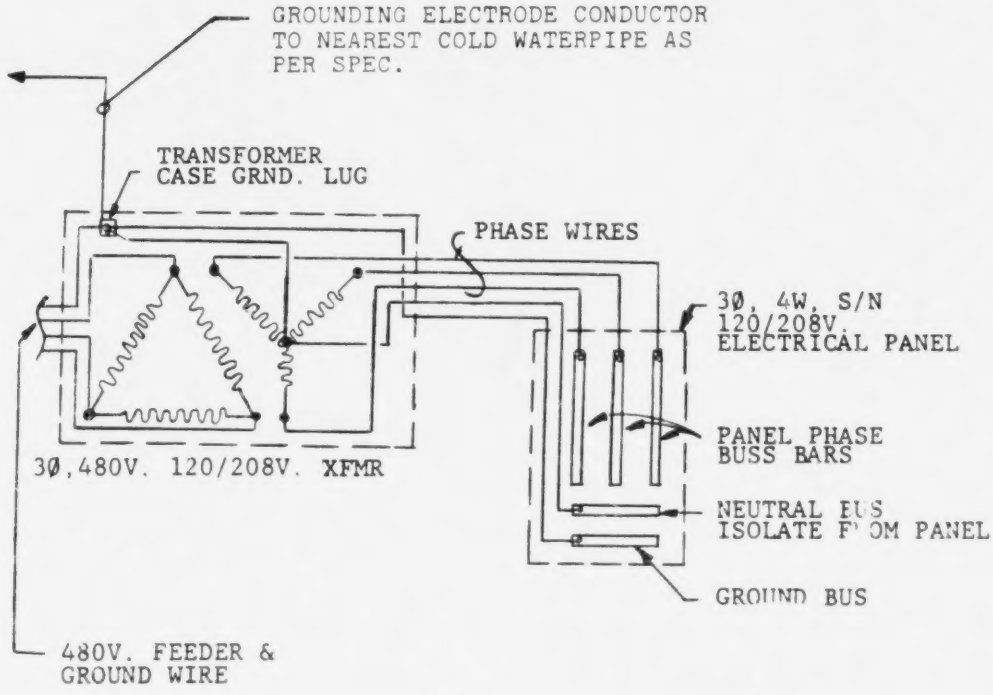
HIGH VOLTAGE COMPARTMENT SHALL BE INACCESSIBLE UNLESS LOW VOLTAGE COMPARTMENT DOOR IS OPEN

HIGH & LOW VOLTAGE DOORS SHALL BE EQUIPPED W/DOOR GUIDES AND STOPS.

TRANSFORMER SHALL BE SECURELY FASTENED TO PAD.

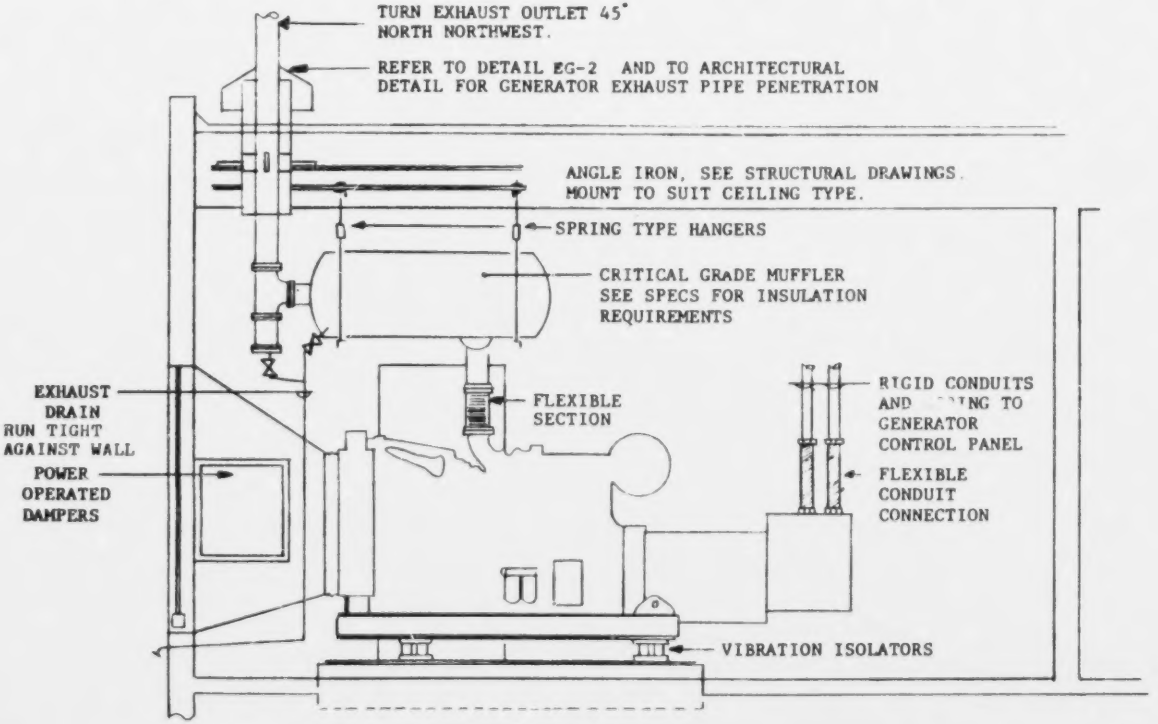
ALL EXTERIOR HARDWARE SHALL BE TAMPERPROOF.

E
T-1



TRANSFORMER AND PANEL GROUNDING

E
T-2


TURN EXHAUST OUTLET 45° NORTH NORTHWEST.
REFER TO DETAIL EG-2 AND TO ARCHITECTURAL DETAIL FOR GENERATOR EXHAUST PIPE PENETRATION
ANGLE IRON, SEE STRUCTURAL DRAWINGS. MOUNT TO SUIT CEILING TYPE.
SPRING TYPE HANGERS
CRITICAL GRADE MUFFLER SEE SPECS FOR INSULATION REQUIREMENTS
EXHAUST DRAIN RUN TIGHT AGAINST WALL
POWER OPERATED DAMPERS
FLEXIBLE SECTION
RIGID CONDUITS AND [illegible]NG TO GENERATOR CONTROL PANEL
FLEXIBLE CONDUIT CONNECTION
VIBRATION ISOLATORS

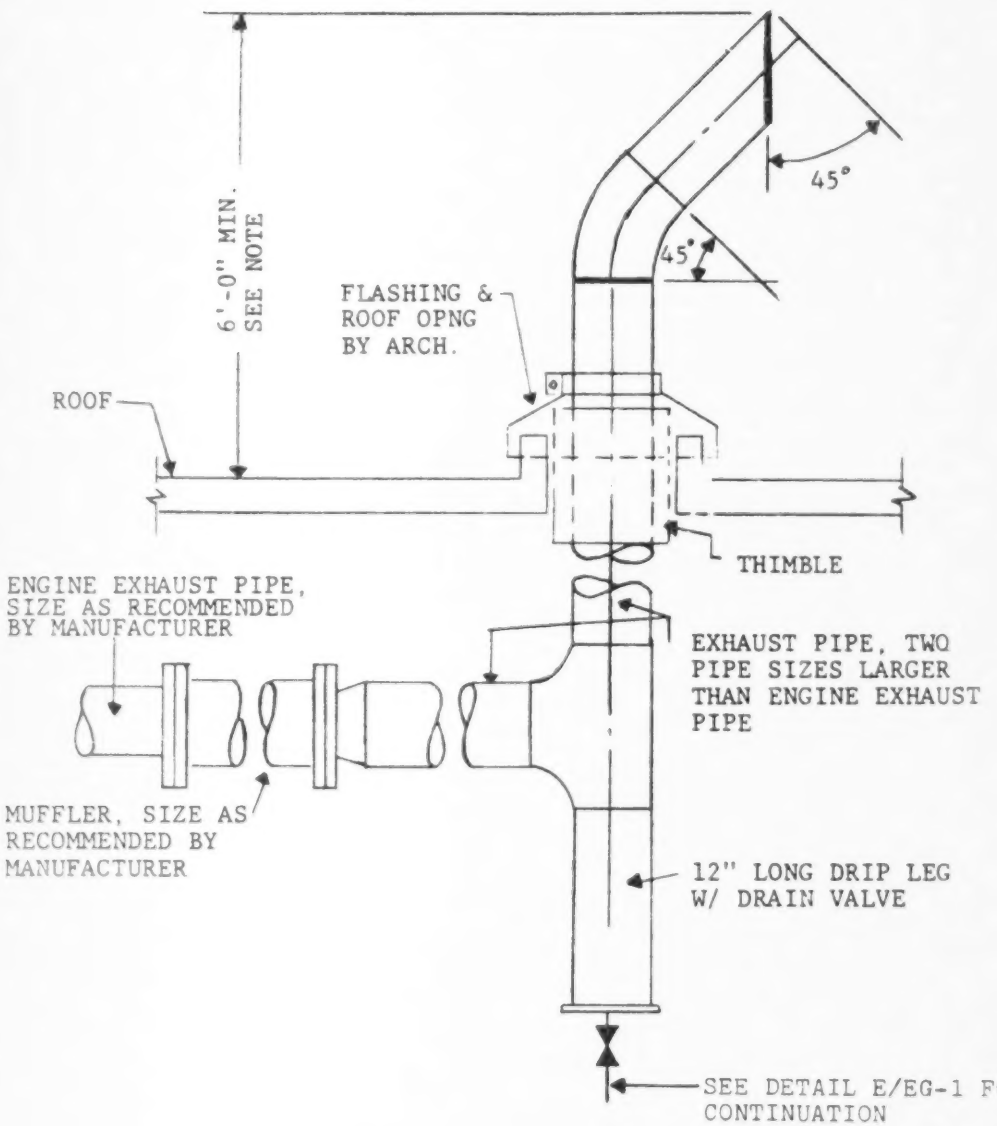
MINIMUM ROOM HEIGHT 12'-0"

EMERGENCY GENERATOR ELEVATION

E
EG-1

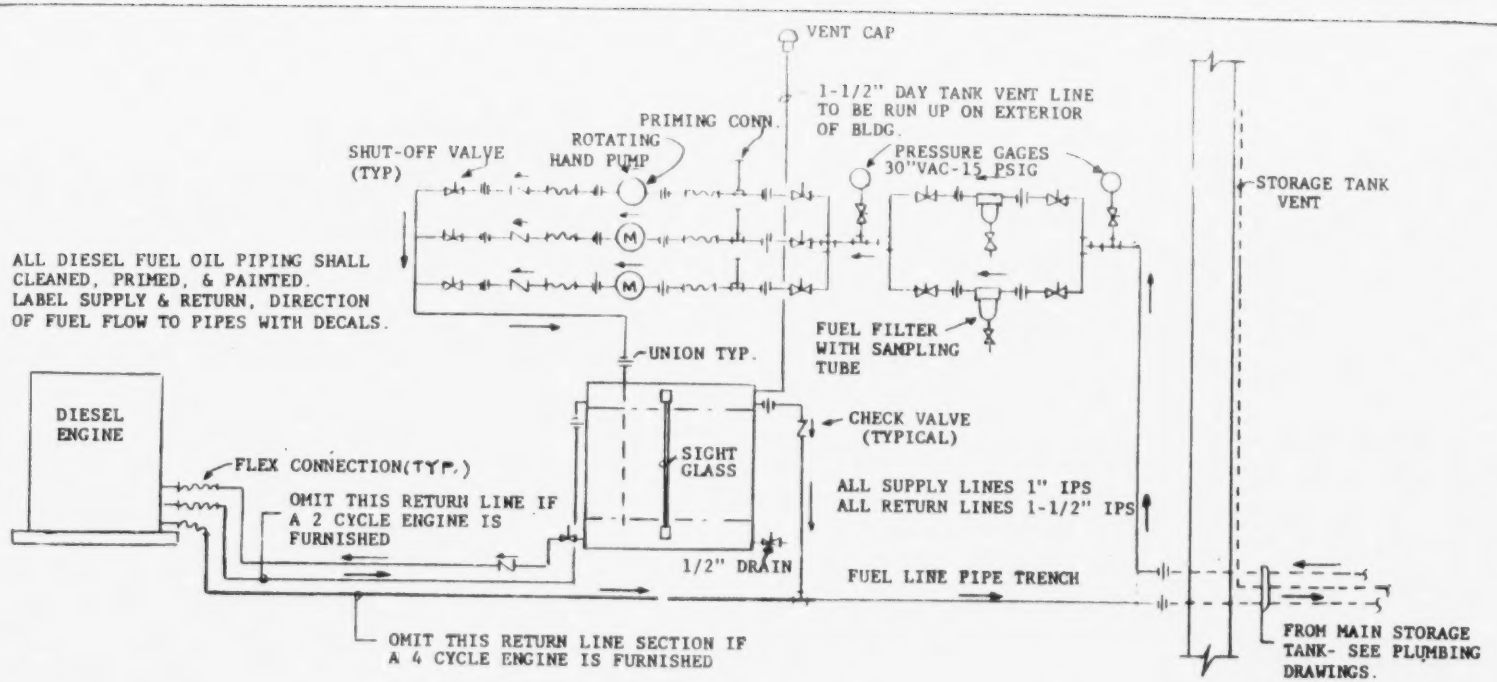
NOTE:

ANY HEIGHT ABOVE 6'-0"
WILL REQUIRE BRACING.

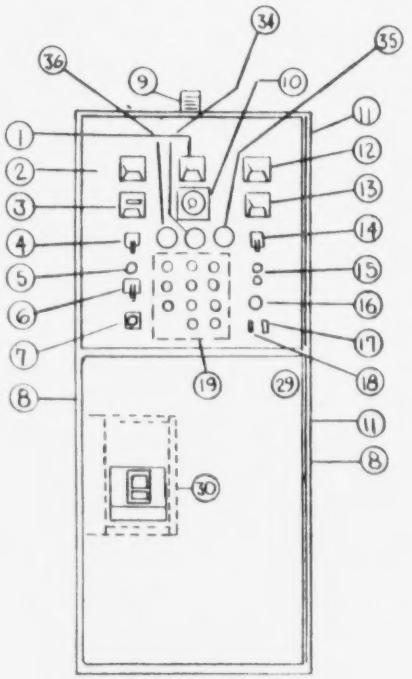


EMERGENCY GENERATOR EXHAUST

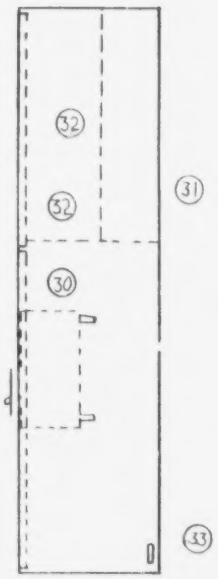
E
EG-2


VENT CAP
1-1/2" DAY TANK VENT LINE TO BE RUN UP ON EXTERIOR OF BLDG.
PRIMING CONN.
ROTATING HAND PUMP
SHUT-OFF VALVE (TYP)
PRESSURE GAGES 30"VAC-15 PSIG
STORAGE TANK VENT
ALL DIESEL FUEL OIL PIPING SHALL CLEANED, PRIMED, & PAINTED. LABEL SUPPLY & RETURN, DIRECTION OF FUEL FLOW TO PIPES WITH DECALS.
FUEL FILTER WITH SAMPLING TUBE
UNION TYP.
DIESEL ENGINE
CHECK VALVE (TYPICAL)
SIGHT GLASS
FLEX CONNECTION(TYP.)
ALL SUPPLY LINES 1" IPS
ALL RETURN LINES 1-1/2" IPS
OMIT THIS RETURN LINE IF A 2 CYCLE ENGINE IS FURNISHED
1/2" DRAIN
FUEL LINE PIPE TRENCH
FROM MAIN STORAGE TANK- SEE PLUMBING DRAWINGS.
OMIT THIS RETURN LINE SECTION IF A 4 CYCLE ENGINE IS FURNISHED

EMERGENCY GENERATOR PLANS AND DETAILS



FRONT VIEW



SIDE VIEW

LEGEND

(1) - FREQUENCY METER

(2) - A.C. VOLT METER 0-600V

(3) - ELAOSED TIME INDICATOR

(4) - VOLTMETER SELECTOR SWITCH
L-L, 3Ø L-N, 3Ø

(5) - AMBER LIGHT-FLASHING WHEN SELECTOR SWITCH IS IN MANUAL POSITION

(6) - MODE SELECTOR SWITCH MANUAL -OFF-AUTOMATIC

(7) - VOLTAGE LEVEL RHEOSTAT

(8) - REMOVEABLE SIDE PANELS

(9) - AUDIBLE ALARM- SEE SPECS.

(10) - K.W. METER

(11) - PIANO HINGE

(12) - A.C. AMMETER

(13) - TACHOMETER 0-2500 RPM

(14) - AMMETER SELECTOR SWITCH

(15) - MANUAL START-STOP PUSH BUTTONS

(16) - EMERGENCY STOP-MUSHROOM HEAD -RED P.B.

(17) - TEST SWITCH

(18) - SILENCING SWITCH

(19) - ENGINE OVER CRANK

(20) - PRE-ALARM HIGH COOLANT TEMP.

(21) - HIGH COOLANT TEMP.

(22) - PRE-ALARM-LOW LUBE OIL PRESSURE

(23) - LOW LUBE OIL PRESSURE

(24) - LOW COOLANT TEMP.

(25) - ENGINE OVER SPEED

(26) - LOW LEVEL DAY TANK

(27) - LOW LEVEL MAIN TANK

(28) - LOW COOLANT LEVEL- AT REST

(29) - GREEN LIGHT-FLASHING WHEN GENERATOR BREAKER IS IN THE TRIPPED OR OPEN POSITION

(30) - MOLDED CASE CIRCUIT BREAKER WITH SOLID STATE TRIPPING. CIRCUIT BREAKER TO HAVE BACK CONNECTED STUDS.

(31) - FIXED REAR PANEL

(32) - STEEL BARRIER

(33) - GROUND BUS

(34) - COOLANT TEMPERATURE GUAGE

(35) - LUBE OIL PRESSURE GUAGE

(36) - FUEL PRESSURE GUAGE

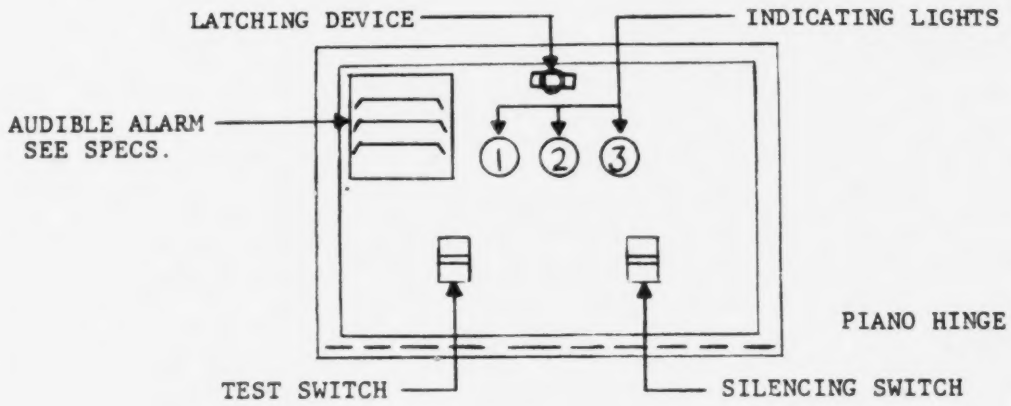
(37) - DIESEL ENGINE

(38) - DAY TANK

1. SEE E/G-5 FOR REMOTE DERANGEMENT PANEL.

GENERATOR CONTROL PANEL

E
EG-4

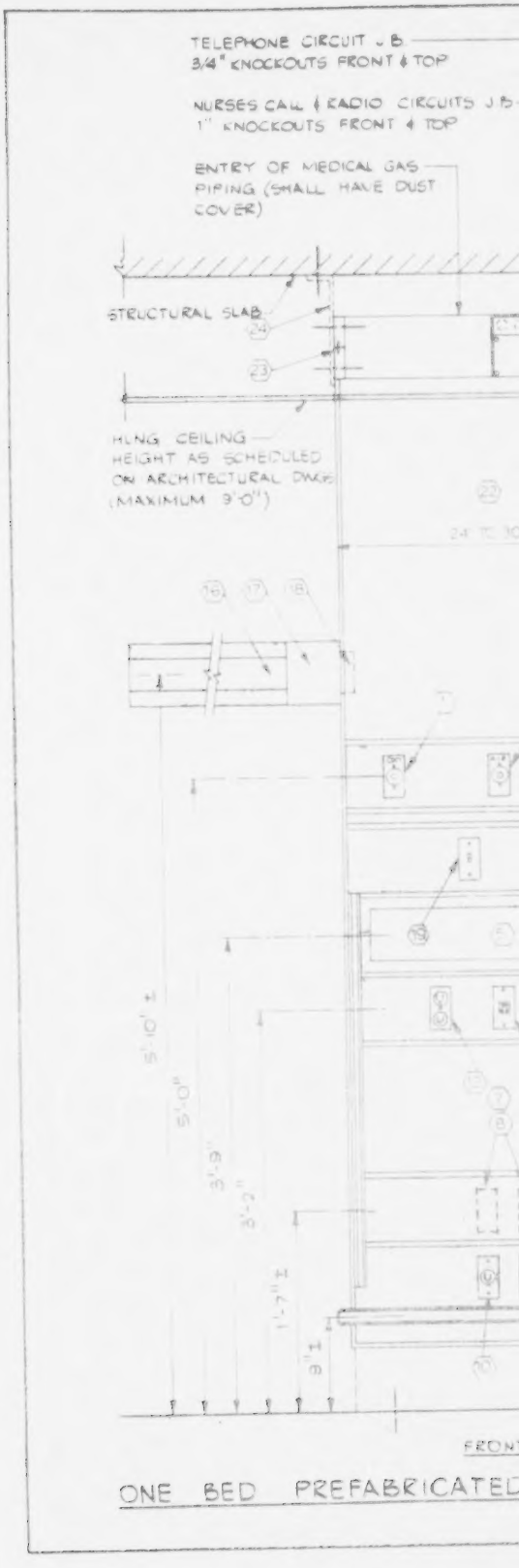


1 - RED INDICATING LIGHT-ENGINE RUNNING

2 - AMBER INDICAIING LIGHT-FLASHING
ENGINE FAILURE

3 - GREEN INDICATING LIGHT-FLASHING
GENERATOR BREAKER OPEN OR TRIPPED

REMOTE DERANGEMENT PANEL

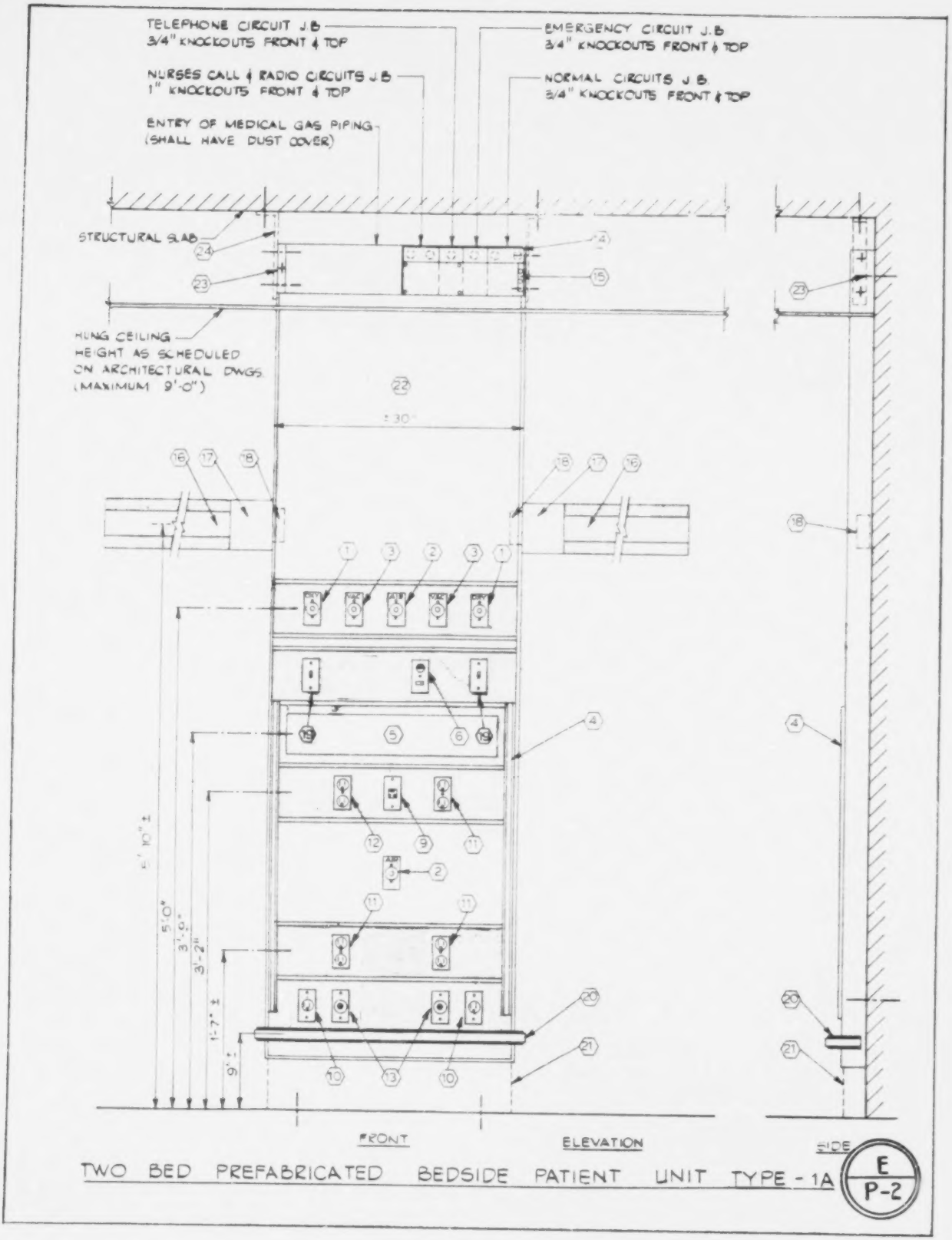


ONE BED PREFABRICATED

ELEVATION SIDE

BEDSIDE PATIENT UNIT TYPE - 1

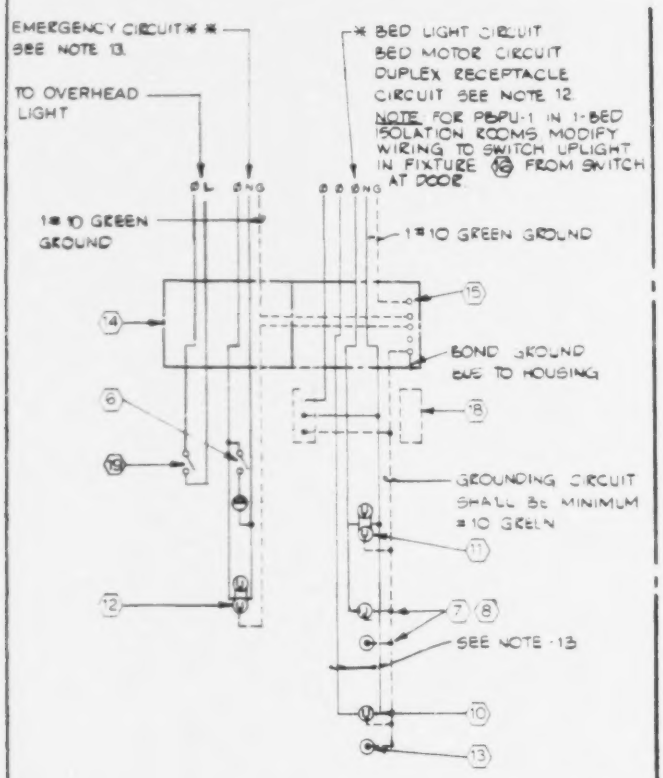
E
P-1



TWO BED PREFABRICATED BEDSIDE PATIENT UNIT TYPE - 1A

E
P-2

PBPU TYPE 1

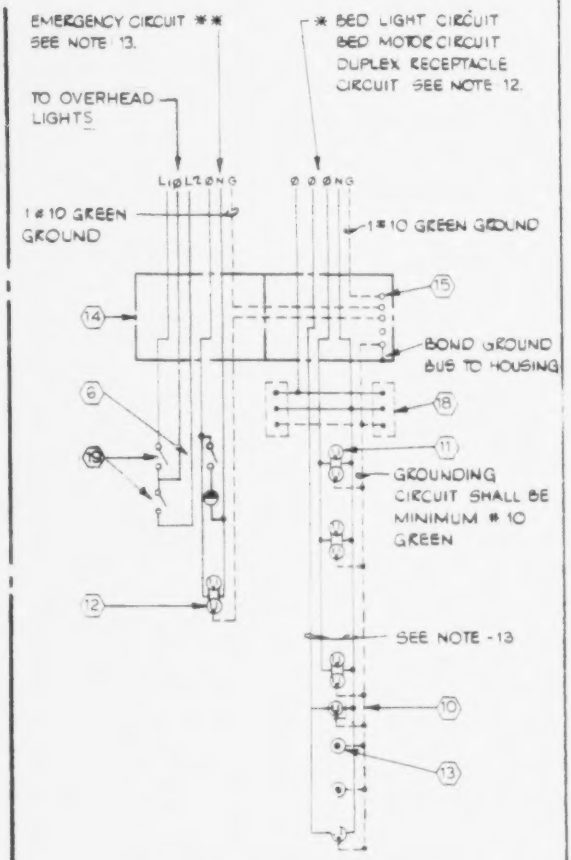

EMERGENCY CIRCUIT * *
SEE NOTE 13.
TO OVERHEAD LIGHT
* BED LIGHT CIRCUIT
BED MOTOR CIRCUIT
DUPLEX RECEPTACLE
CIRCUIT SEE NOTE 12.
NOTE FOR PBPU-1 IN 1-BED ISOLATION ROOMS, MODIFY WIRING TO SWITCH UPLIGHT IN FIXTURE (19) FROM SWITCH AT DOOR
ØL ØNG
Ø Ø ØNG
1 # 10 GREEN GROUND
1 # 10 GREEN GROUND
BOND GROUND BUS TO HOUSING
GROUNDING CIRCUIT SHALL BE MINIMUM # 10 GREEN
SEE NOTE -13

SCHEMATIC WIRING DIAGRAM

NO SCALE

* CIRCUIT TO SUPPLY A MAXIMUM OF (4) PBPU'S.
* * CIRCUIT TO SUPPLY A MAXIMUM OF (8) PBPU'S.

PBPU TYPE 1A

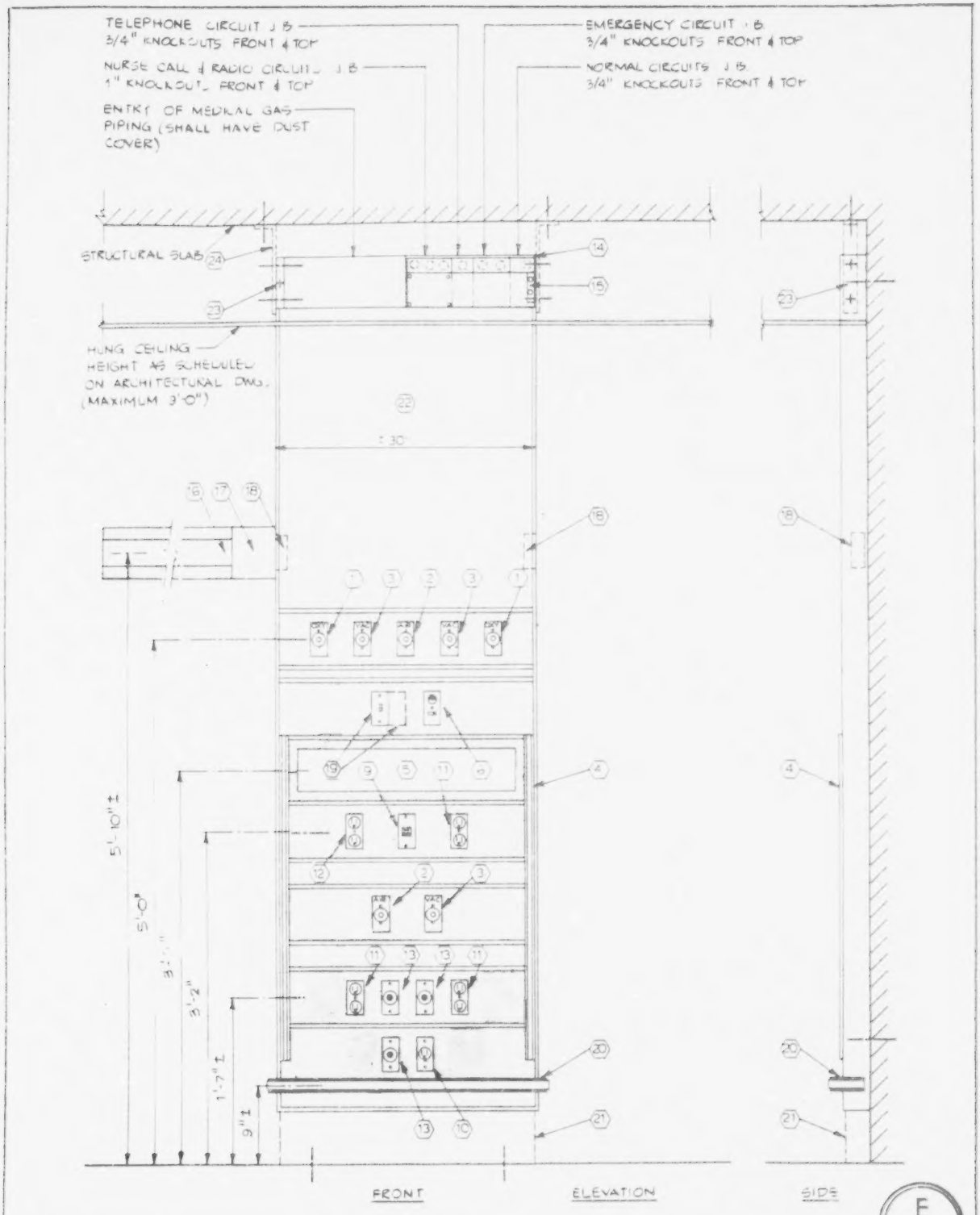


SCHEMATIC WIRING DIAGRAM

NO SCALE

* CIRCUIT TO SUPPLY A MAXIMUM OF (4) PBPU'S.
* * CIRCUIT TO SUPPLY A MAXIMUM OF (8) PBPUS.

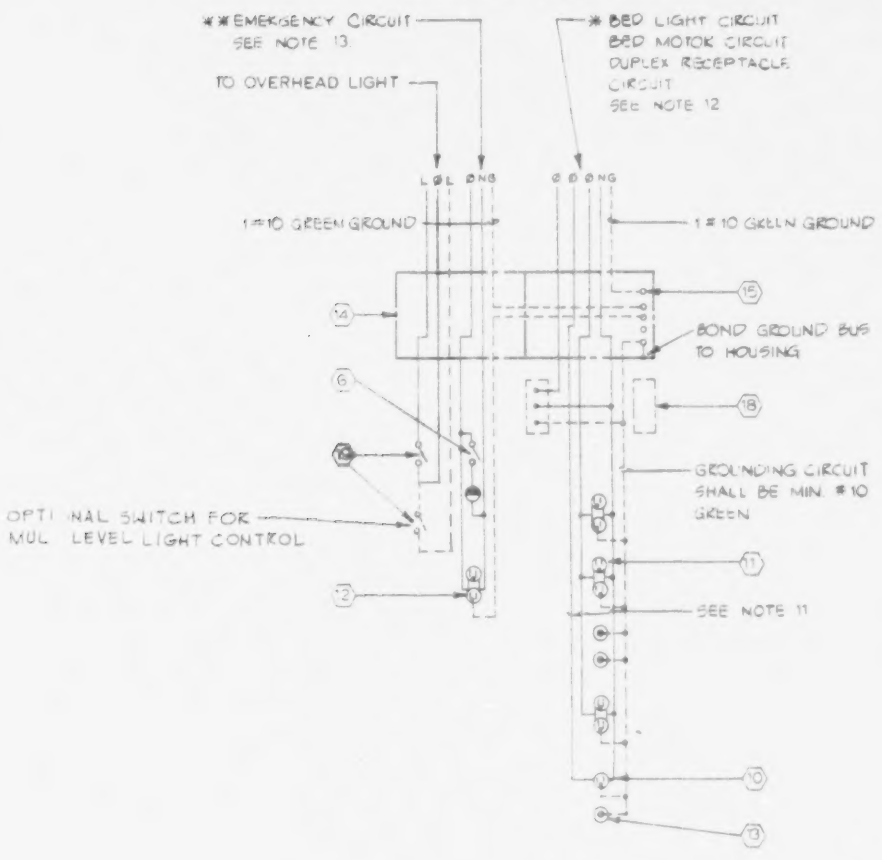
E
P-3



ONE BED PREFABRICATED BEDSIDE PATIENT UNIT TYPE - 2 OR 2A

E / P-4

PBPU TYPE 2 OR 2A



SCHEMATIC WIRING DIAGRAM

NO SCALE

* CIRCUIT TO SUPPLY A MAXIMUM OF (4) PBPU'S
** CIRCUIT TO SUPPLY A MAXIMUM OF (8) PBPU'S

NOTE
TYPE 2 - AUDIO-VISUAL NURSE CALL
TYPE 2A - VISUAL NURSE CALL

E
P-5

SYMBOL LEGEND

1. OXYGEN OUTLET – ENGRAVE COVER PLATE "OXYGEN"
2. AIR OUTLET – ENGRAVE COVER PLATE "AIR" – SEE NOTE 17.
3. VACUUM OUTLET – ENGRAVE COVER PLATE "VACUUM"
4. SLIDE BRACKETS FOR VACUUM – SEE NOTE 16.
5. SPACE FOR NURSE CALL STATION
6. AUXILIARY LIGHT & SWITCH – SEE NOTE 6
7. OPTIONAL DIALYSIS RECEPTACLE
8. OPTIONAL DIALYSIS GROUND JACK
9. TELE-CART RECEPTACLE
10. BED RECEPTACLE – SEE NOTES 9 & 15.
11. DUPLEX RECEPTACLE – SEE NOTES 7 & 15.
12. "RED" EMERGENCY DUPLEX RECEPTACLE
13. GROUNDING RECEPTACLE – SEE NOTES 8. & 15.
14. BARRIERED JUNCTION BOX
15. REFERENCE GROUND BUS – SEE NOTE 10.
16. FIXTURE # E-F-18.C
17. EXTENSION COLLAR – SEE NOTE 5
18. OUTLET BOXES – SEE NOTE 4
19. OVERHEAD TASK LIGHT SWITCH
20. BED BUMPER WITH VINYL EDGE
21. OPTIONAL BASE – SEE NOTE 2
22. DECORATIVE ACCESS PANEL – SEE NOTE 3
23. MOUNTING BOLTS – SEE NOTE 1
24. STEEL STRAP – SEE NOTE 2

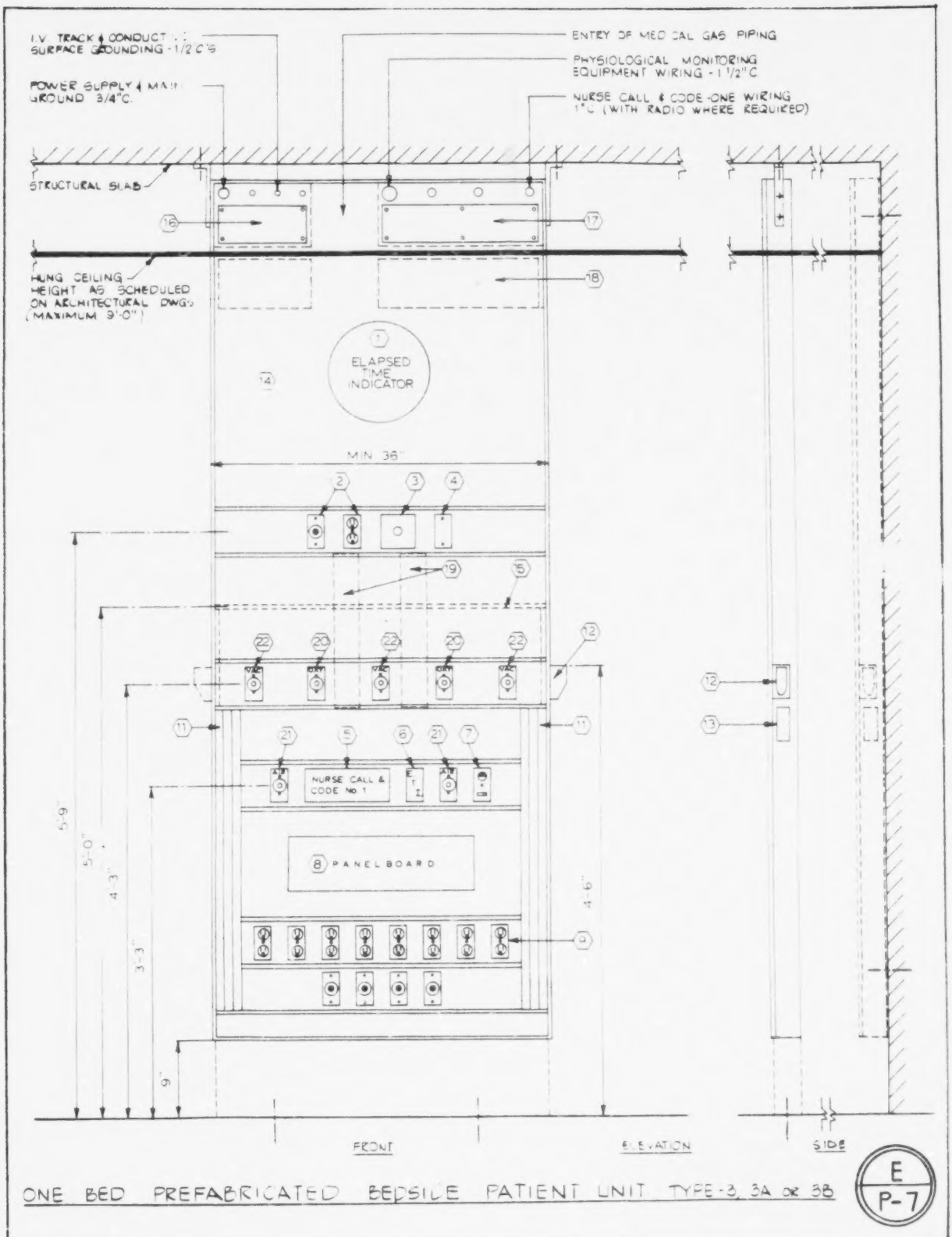
GENERAL NOTES

1. MOUNT THE UNIT FLAT AGAINST THE WALL AND SECURE IT WITH (4) APPROVED BOLTS.
2. IF UNIT IS TO BE MOUNTED FREE STANDING PROVIDE AN EXTENDED BASE SECTION AND CEILING 2" x 1/4" STEEL STRAPS.
3. DECORATIVE ACCESS PANELS SHALL COVER ALL FRONT SPACES OF UNIT NOT OCCUPIED WITH DEVICE CONSOLES OR DEVICES. SEE COLOR DESIGN SECTION OF SPECIFICATIONS
4. OUTLET BOXES FOR CONNECTION TO BEDLIGHT, EITHER SIDE. BLANK OUTLET BOX WITH STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE IF NOT USED.
5. EXTENSION COLLAR. PROVIDE A DECORATIVE WIREWAY CLOSURE (EXTENSION OF FIXTURE OR A MATCHING HOUSING) BETWEEN FIXTURE AND P.B.P.U. OUTLET BOX.
6. AUXILIARY LIGHT (7 WATTS) WITH HOOD AND SWITCH. BOTH MOUNTED ON STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE, SINGLE GANG BOX.
7. DUPLEX RECEPTACLES 20 AMP HOSPITAL GRADE WHITE WITH STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE. PROVIDE ONE SELF ILLUMINATED RED DUPLEX WITH STAINLESS STEEL COVER PLATE ENGRAVED 1/8" RED FILLED LETTERS "EMERGENCY POWER."
8. GROUNDING RECEPTACLES SHALL BE AS DETAILED IN FIGURE #1 OF NFPA 56A (1973), STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE, SINGLE GANG BOX MOUNTING.
9. BED RECEPTACLE, SINGLE 20 AMP 2 POLE 3 WIRE, HOSPITAL GRADE STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE, SINGLE GANG BOX MOUNTING.
10. REFERENCE GROUND BUS – PROVIDE ADDITIONAL TERMINALS AS REQUIRED FOR GROUNDING FIXED METAL SURFACES IN THE PATIENT VICINITY PLUS 50 PERCENT SPACE CAPACITY.
11. SCHEMATIC WIRING DIAGRAM INDICATES INTERNAL "P.B.P.U." PREWIRED TO TOP JUNCTION BOXES. ALL WIRING TO BE NO. 12 UNLESS NOTED OTHERWISE.
12. NORMAL CIRCUITS (5 WIRES) ONE BEDLIGHT CIRCUIT, ONE BED RECEPTACLE AND ONE DUPLEX RECEPTACLE CIRCUIT. COLOR CODED AND/OR TAG WIRES TO IDENTIFY CIRCUITS WHEN MORE THAN ONE "PBPU" IS CONNECTED TO SAME HOMERUN AS INDICATED ON THE PLANS.
13. EMERGENCY CIRCUIT (3 WIRES), COLOR CODED AND OR TAG WIRES TO IDENTIFY CIRCUIT WHEN MORE THAN ONE "PBPU" IS CONNECTED TO SAME HOMERUN AS INDICATED ON THE PLANS.
14. NIGHT LIGHT CIRCUIT (2 WIRES), TO BE WIRED TO SAME HOMERUN AS INDICATED ON THE PLANS. CIRCUIT FED FROM AN EMERGENCY SOURCE.
15. FACE PLATES OR ESCUTCHEON PLATES MAY BE OMITTED AND RECEPTACLES MOUNTED ESSENTIALLY FLUSH WITH FRONT DECORATIVE ACCESS PANELS PROVIDED THE PANEL OPENINGS ARE PROPERLY SIZED TO INSURE A SNUG, DIRT RESISTENT FIT.
16. MINIMUM 30" SLIDE MOUNT OR FULL HEIGHT ACCESSORY TRACK WITH MINIMUM OF (4) ADJUSTABLE SLIDE MOUNTS
17. NOT REQUIRED ON PBPU TYPE 1 & 1A AS USED IN GENERAL NURSING AREAS

PREFABRICATED BEDSIDE PATIENT UNIT

TYPE - 1 TYPE - 1A TYPE - 2 OR 2A

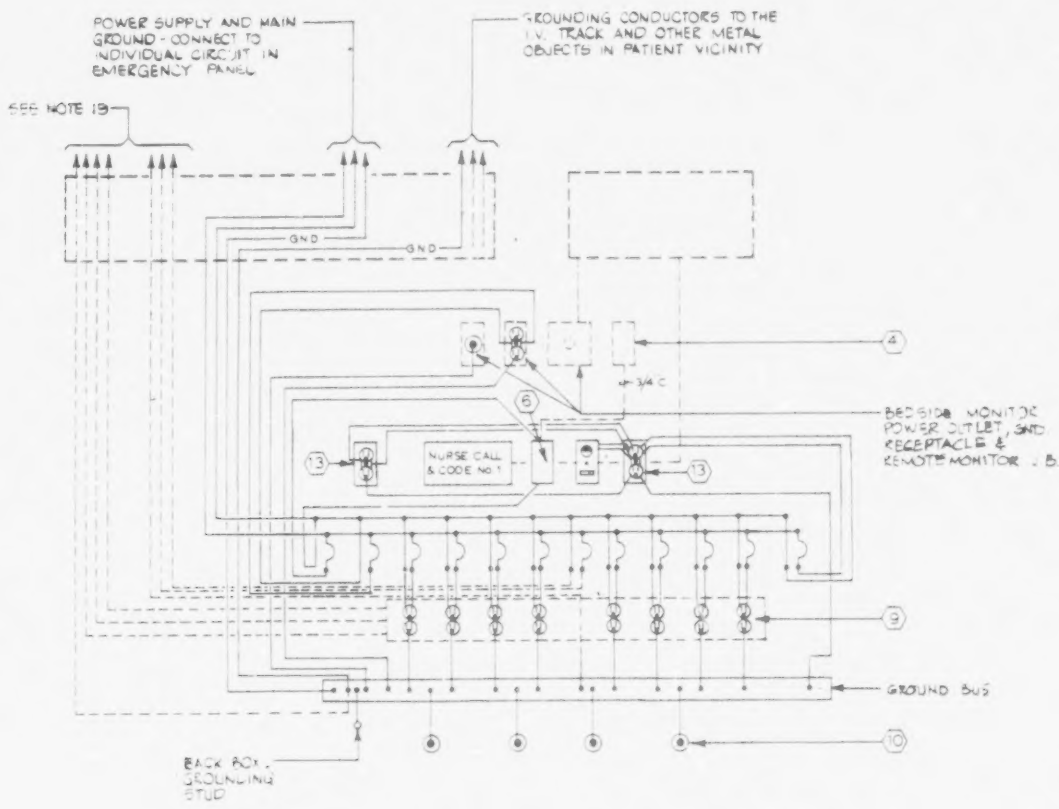
E
P-6



ONE BED PREFABRICATED BEDSIDE PATIENT UNIT TYPE-3, 3A OR 3B

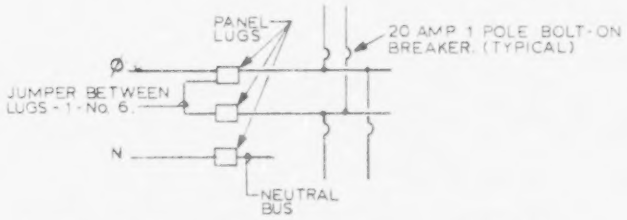
E
P-7

PBPU TYPE 3, 3A OR 3B


POWER SUPPLY AND MAIN GROUND - CONNECT TO INDIVIDUAL CIRCUIT IN EMERGENCY PANEL
GROUNDING CONDUCTORS TO THE I.V. TRACK AND OTHER METAL OBJECTS IN PATIENT VICINITY
SEE NOTE 19
GND
GND
3/4 C
NURSE CALL & CODE NO. 1
BEDSIDE MONITOR POWER OUTLET, GND RECEPTACLE & REMOTE MONITOR - B
GROUND BUS
BACK BOX - GROUNDING STUD

SCHEMATIC WIRING DIAGRAM

NO SCALE



DETAIL SHOWING CONNECTION OF PANEL

NOTE

TYPE 3 - CODE-ONE SYSTEM AND AUDIO VISUAL NURSE CALL SYSTEM INCLUDING PILLOW SPEAKER-MICROPHONE WITH RADIO AND TV CONTROLS

TYPE 3A - CODE "ONE" SYSTEM AND VISUAL NURSE CALL SYSTEM

TYPE 3B - CODE "ONE" SYSTEM

E
P-8

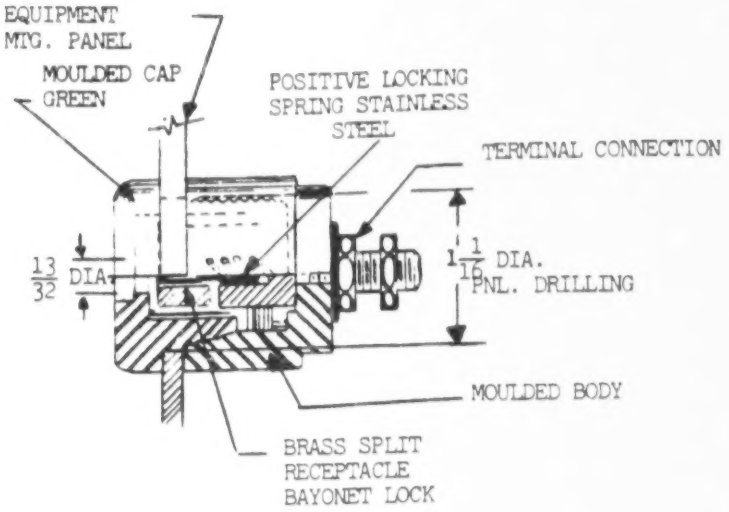
SYMBOL LEGEND

(1) ELAPSED TIME INDICATOR
(2) POWER & GROUND OUTLETS - SEE NOTE 7 & 15.
(3) OUTLET BOX - SEE NOTE 8
(4) JUNCTION BOX - SEE NOTE 9
(5) NURSE CALL AND CODE "ONE" PANEL
(6) CONTROL FOR ELAPSED TIME INDICATOR CLOCK
(7) AUXILIARY LIGHT & SWITCH - SEE NOTE 10
(8) CIRCUIT BREAKER PANEL - SEE NOTES 12 AND 21
(9) LIFE SUPPORT OUTLETS - SEE NOTE 13 & 17.
(10) GROUNDING RECEPTACLE - SEE NOTE 14
(11) SLIDE BRACKET FOR VACUUM BOTTLES - SEE NOTE 18.
(12) BEDLIGHT BRACKET - SEE NOTE 11
(13) BEDLIGHT OUTLET - SEE NOTE 13
(14) DECORATIVE ACCESS PANELS - SEE NOTE 3
(15) SHELF - SEE NOTE 6
(16) POWER JUNCTION BOX W/ ACCESS COVER - SEE NOTE 4
(17) SIGNAL JUNCTION BOX W/ ACCESS COVER - SEE NOTE 4
(18) ALTERNATE JUNCTION BOXES - SEE NOTE 5
(19) BRACKET ARM - SEE NOTE 6
(20) OXYGEN OUTLET - ENGRAVE COVER PLATE "OXYGEN"
(21) AIR OUTLET - ENGRAVE COVER PLATE "AIR"
(22) VACUUM OUTLET - ENGRAVE COVER PLATE "VACUUM"

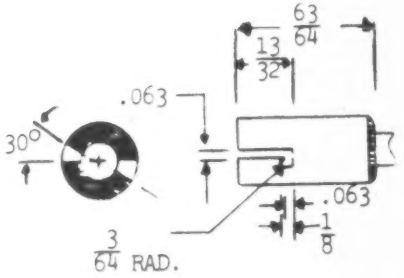
GENERAL NOTES

1. UNIT SHALL BE MOUNTED FREE STANDING. PROVIDE (2) 2" x 1/4" STEEL STRAPS. SECURE UNIT WITH (4) APPROVED ANCHOR BOLTS
2. OPTIONAL WALL MOUNTING SHALL BE SECURED WITH (4) APPROVED ANCHOR BOLTS
3. DECORATIVE ACCESS PANELS SHALL COVER ALL FRONT SPACES OF UNIT NOT OCCUPIED BY DEVICE CONSOLES OR DEVICES. SEE COLOR DESIGN SECTION OF SPECIFICATIONS.
4. WIRING SHALL BE EXTENDED FROM JUNCTION BOXES TO ASSOCIATED DEVICES WITHIN THE PBPU IN EMT, FLEXIBLE METALLIC CONDUIT OR APPROVED RIGID RACEWAY IN A MANNER TO AVOID CLOSE PROXIMITY TO WIRING DEVICES. POWER AND SIGNAL SHALL RUN IN SEPARATE CONDUIT
5. ALTERNATE - JUNCTION BOXES MAY BE LOCATED BELOW THE CEILING LINE BEHIND REMOVABLE PANEL AND HAVE TOP CONDUIT ENTRY
6. LOCATIONS OF VA FURNISHED VERTICAL SLIDE MOUNT FOR ARM TYPE PHYSIOLOGICAL MONITORING SHELF AND ALTERNATE VA FURNISHED FLAT TYPE PHYSIOLOGICAL MONITORING SHELF. PBPU SHALL BE COORDINATED WITH TYPE OF SHELF AND VA FURNISHED MONITORING EQUIPMENT TO BE SUPPLIED, AND SHALL BE STRUCTURALLY STRENGTHENED TO SUPPORT, WITHOUT SAGGING, EITHER TYPE SHELF WITH A MAXIMUM VERTICAL LOAD OF 100 LBS. CONCENTRATED (1) FOOT AWAY FROM THE FACE OF THE UNIT
7. POWER OUTLET AND GROUNDING RECEPTACLES FOR PHYSIOLOGICAL MONITORING EQUIPMENT
8. OUTLET BOX (MIN 4" x 4") FOR WIRING TO REMOTE PHYSIOLOGICAL MONITORING EQUIPMENT
9. JUNCTION BOX WITH RACEWAY CONNECTION TO THE ELAPSED TIME INDICATOR, FOR FUTURE AUTOMATIC CONTROL FROM PHYSIOLOGICAL MONITORING EQUIPMENT
10. AUXILIARY LIGHT (7 WATTS) WITH HOOD AND SWITCH, BOTH MOUNTED ON STAINLESS STEEL OR ANODIZED ALUMINUM FACE PLATE, SINGLE GANG BOX
11. BEDLIGHT VA TYPE E/N-2 FIXTURE. BRACKET SHALL BE SECURED IN A MANNER WHICH WILL PREVENT WARPING OR BENDING OF PBPU SIDE PANELS WHEN INSTALLED BEDLIGHT FIXTURE IS ADJUSTED. ONE FIXTURE TO BE PROVIDED WITH EACH "PBPU".
12. CIRCUIT BREAKER PANEL - OPEN WITH GUARD BAR OR PROVIDED WITH A GASKETED DOOR
13. POWER OUTLETS - LIFE SUPPORT PHYSIOLOGICAL MONITORING POWER SUPPLY AND BEDLIGHT DUPLEX RECEPTACLES SHALL BE 20 AMP 2 POLE 3 WIRE GROUNDING "HOSPITAL GRADE" TYPE. TYPICAL FOR ALL POWER OUTLETS
14. GROUNDING RECEPTACLES SHALL BE AS DETAILED IN VA STANDARD DETAIL E-P-12 TYPICAL FOR ALL GROUNDING RECEPTACLES
15. FACE OR ESCUTCHEON PLATES SHALL BE STAINLESS STEEL OR ANODIZED ALUMINUM. PLATES MAY BE OMITTED AND RECEPTACLES MOUNTED ESSENTIALLY FLUSH WITH FRONT DECORATIVE ACCESS PANELS PROVIDED THE PANEL OPENINGS ARE PROPERLY SIZED TO INSURE A SNUG, DIRT RESISTANT FIT
16. GROUND BUS SHALL HAVE 50 PERCENT SPARE TERMINALS FOR GROUNDING OF OBJECTS OUTSIDE OF THE UNIT, AND BUS MAY BE LOCATED IN TOP JUNCTION BOX
17. ALL BRANCH CIRCUIT WIRING SHALL BE #12 AWG STRANDED TYPE XHHW WITH MIN. OF 3/64" INSULATION THICKNESS. COLOR-CODED AS INDICATED. ALL GROUND WIRING SINGLE CONDUCTOR #10 (UNLESS OTHERWISE NOTED) THW COLOR CODED "GREEN." COLOR-CODING OF CONDUCTORS SHALL BE AN INHERANT PART OF THE INSULATION OF JACKET
18. MINIMUM 30" SLIDE MOUNT OR FULL HEIGHT ACCESSORY TRACK WITH MINIMUM OF (4) ADJUSTABLE SLIDE MOUNTS
19. **WHERE EXTERNAL LIFE SUPPORT RECEPTACLES ARE REQUIRED USE SPARE AND/OR ELIMINATE (1) ONE POWER RECEPTACLE AS SHOWN. A GROUND JACK IS REQUIRED FOR EACH EXTERNAL DUPLEX, OR PAIR OF RECEPTACLES. MINIMUM GROUND CONDUCTOR SIZE SHALL BE #8 THW COLOR-CODED "GREEN".**
20. PANELBOARD TO BE 120/208 VOLT 1 PHASE 3 W S N WITH 60 AMP M L O AND 12-20 AMP 1 POLE BOLT-ON CIRCUIT BREAKERS.
21. ENGRAVE CIRCUIT NUMBERS ON ALL DEVICE PLATES
22. MINIMUM 40A AMPERES SERVICE

PREFABRICATED BEDSIDE PATIENT UNIT
TYPE-3, 3A OR 3B



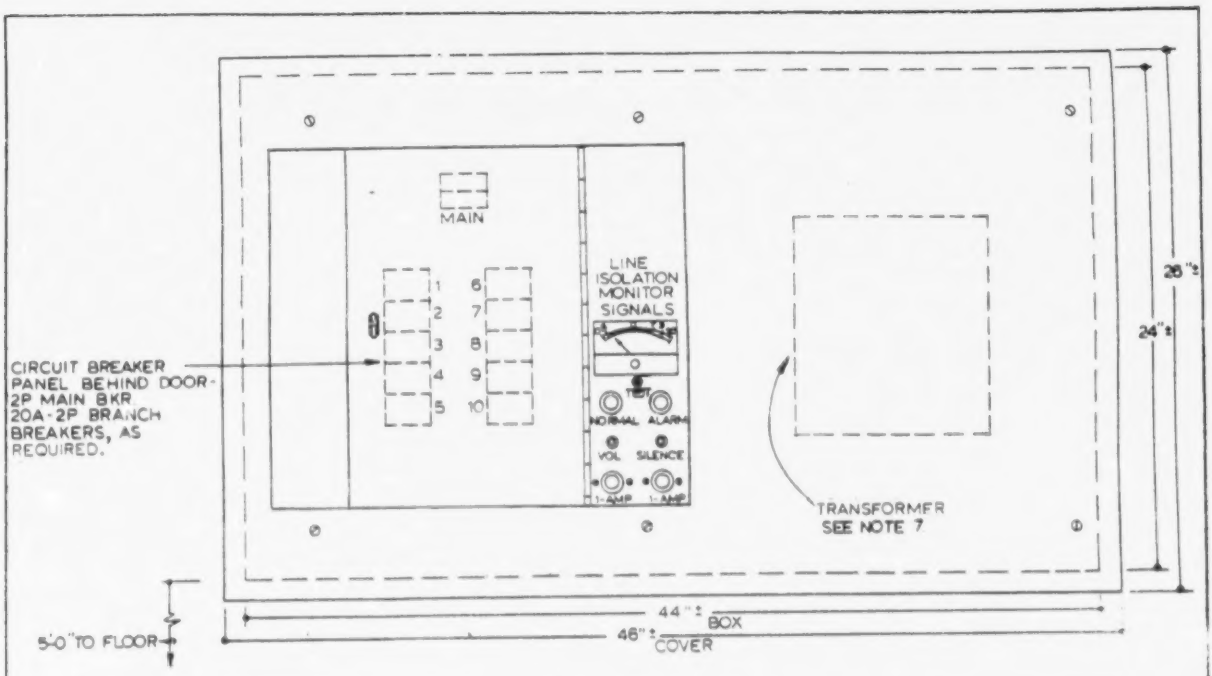
RECEPTACLE

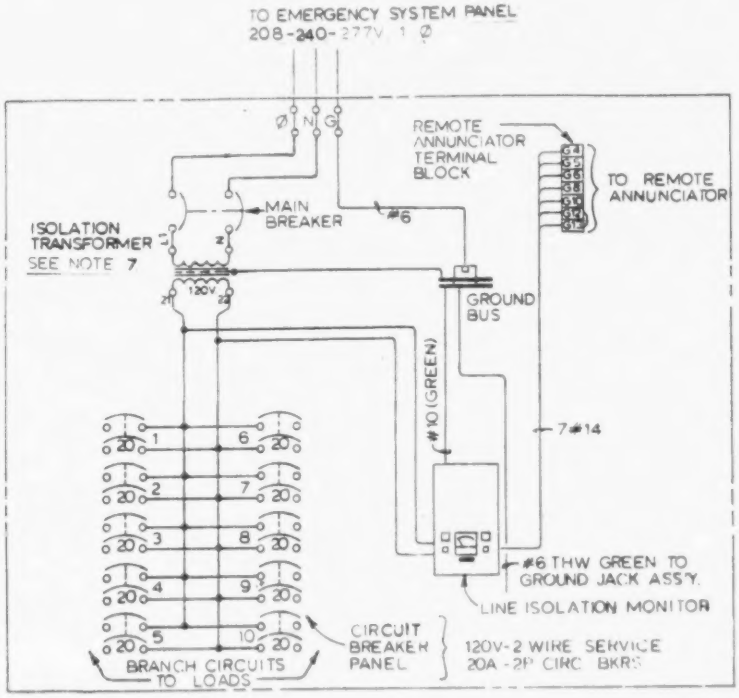


BAYONET LOCK DIMS.

SPECIAL HOSPITAL LOCK-TYPE GROUNDING PLUG.

E
P-10





WIRING DIAGRAM

ISOLATED POWER PANEL (TYPICAL)

E
IP-1

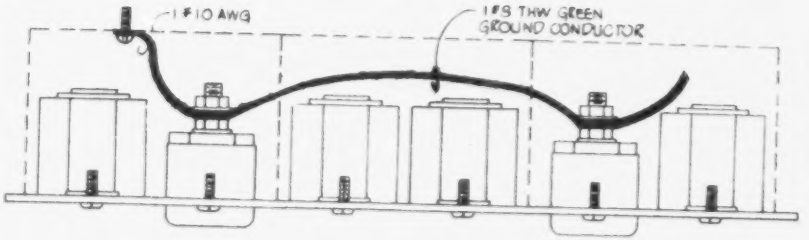
NOTES:

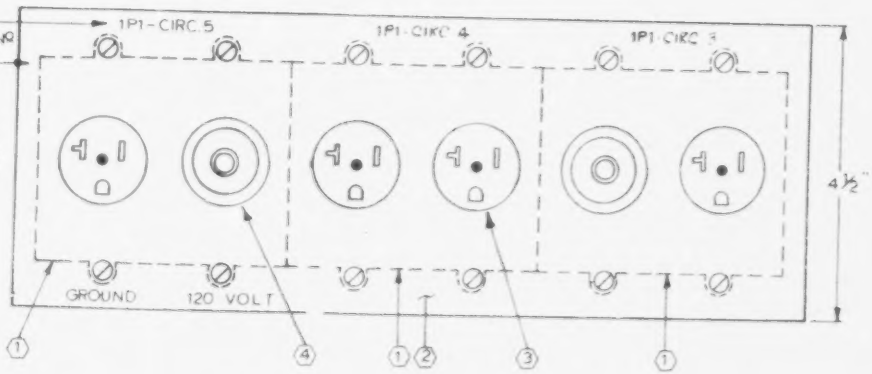
1. ISOLATION PANELS:
   a. PANELS SHALL BE LISTED AS COMPLETE ASSEMBLIES BY UNDERWRITER'S LABORATORIES INC.
   b. PANELS SHALL BE FLUSH MOUNTED AND SHALL CONSIST OF A THREE PIECE ASSEMBLY INCLUDING NON-VENTILATED TYPE GALVANIZED CODE GAUGE STEEL BACK BOX, BOLT-IN TYPE CHASSIS AND #304 STAINLESS STEEL TRIM PANEL WITH #4 SATIN FINISH.
   c. ISOLATION TRANSFORMER SHALL BE, DRY TYPE WITH ELECTROSTATIC SHIELD, ___KVA ARRANGED FOR ___V PRIMARY, 120V SECONDARY.
   d. CIRCUIT BREAKER SHALL BE RATED FOR 120 VOLTS, 20 AMPERES, 2-POLE, BOLT-IN AND SHALL BE U.L. APPROVED FOR THE SERVICE INTENDED.
   e. ALL PANEL WIRING SHALL BE FACTORY INSTALLED - ONLY EXTERNAL CONNECTIONS WILL BE MADE IN FIELD. PANEL SHALL MAINTAIN SEGREGATION BETWEEN GROUNDED AND UNGROUNDED CIRCUITS - FIELD WIRING SHALL NOT ENTER THE TRANSFORMER COMPARTMENT.
   f. INCOMING LINE CONNECTIONS SHALL BE FOR COPPER CONDUCTORS.
   g. PANEL SHALL HAVE A REFERENCE GROUND BUS HAVING 20 BRANCH TERMINALS FOR #14 - #6 CU. WIRE FOR CONNECTING SECONDARY CIRCUITS TO REMOTE RECEPTACLES, LIGHTS AND ALL EXPOSED CONDUCTIVE SURFACES.
   h. PANEL SHALL HAVE TERMINAL BLOCKS FOR FUTURE FIELD WIRING BETWEEN LIM AND REMOTE ANNUNCIATOR.
   i. ALL CONDUCTORS ON THE SECONDARY SIDE OF THE ISOLATION TRANSFORMER, BOTH FACTORY WIRING & FIELD WIRING SHALL HAVE A MINIMUM OF 3/64" CROSS-LINKED POLYETHYLENE INSULATION WITH A DIELECTRIC CONSTANT OF 3.5 OR LESS AND AN INSULATION RESISTANCE CONSTANT OF 20,000 AT 60° F EACH UNDERGROUNDED SECONDARY CONDUCTOR SHALL BE COLOR CODED AS FOLLOWS: ISOLATED CONDUCTOR NO. 1 -- ORANGE, ISOLATED CONDUCTOR NO. 2 -- BROWN, GROUNDING CONDUCTOR -- GREEN.
2. EACH BRANCH CIRCUIT FROM ISOLATION PANELS TO REMOTE DEVICES SHALL CONSIST OF 2#12 & 1#10 GND. IN 3/4" SCHEDULE 40 PVC RIGID CONDUIT. THIS INCLUDES SURGICAL LIGHT SWITCH CIRCUITS.
3. NO COMPOUND NOR LUBRICANT OF ANY KIND SHALL BE USED TO PULL ANY OF THE CONDUCTORS ON THE SECONDARY SIDE OF THE TRANSFORMER.
4. SPECIAL CARE SHALL BE TAKEN TO KEEP CONDUIT ENDS CAPPED UNTIL THE INSTALLATION OF THE CONDUITS IN ORDER TO KEEP THEM FREE FROM MOISTURE. SHOULD MOISTURE ACCIDENTALLY ENTER THE CONDUITS, THEY SHALL BE SWABBED AND THOROUGHLY DRIED BEFORE CONDUCTORS ARE PULLED.
5. INSTALL TWO SPARE 1" CONDUITS FROM EACH ISOLATING PANEL TO ABOVE THE CEILING & CAP FOR FUTURE USE.
6. PANELS SHALL BE VERTICAL OR HORIZONTALLY ASSEMBLY.
7. MAXIMUM 7 1/2 KVA ISOLATION TRANSFORMER SIZE.

ISOLATED POWER PANEL

E
IP-2

RECEPTACLE & GROUND JACK ASSEMBLY (TYPICAL)



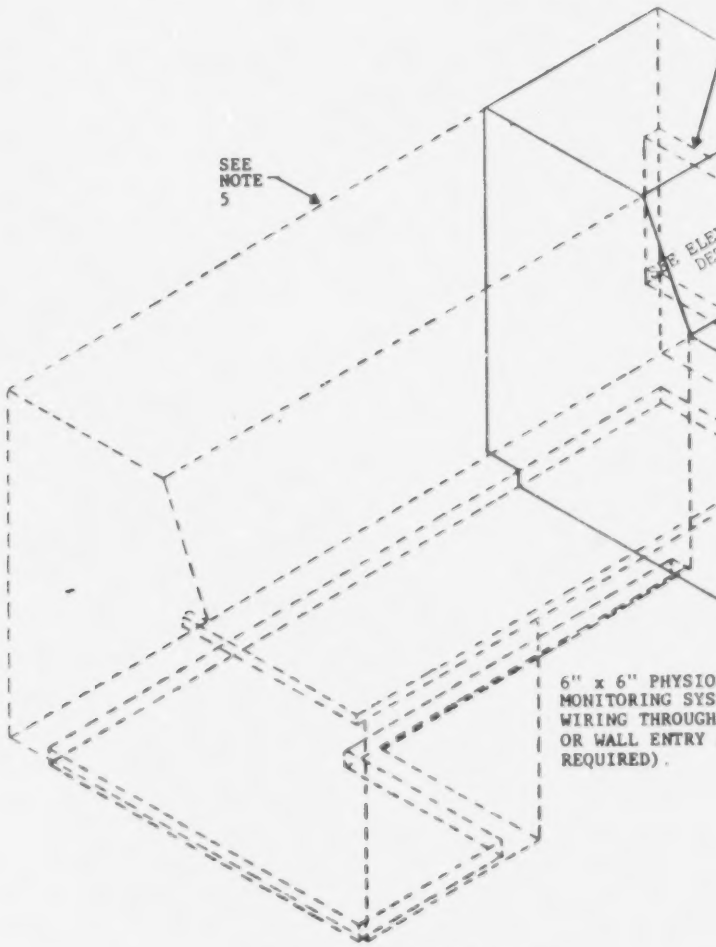


LEGEND

1. STANDARD 2 GANG BOX (MIN. 2-3/4" DEEP)
2. IMPACT RESISTANT ACRYLIC PLASTIC
3. RECEPTACLE - SINGLE, 3 WIRE 120 VOLT, 20AMP, HOSPITAL GRADE
4. GROUND JACK - TWIST TO LOCK SPRING LOADED, 30 AMP

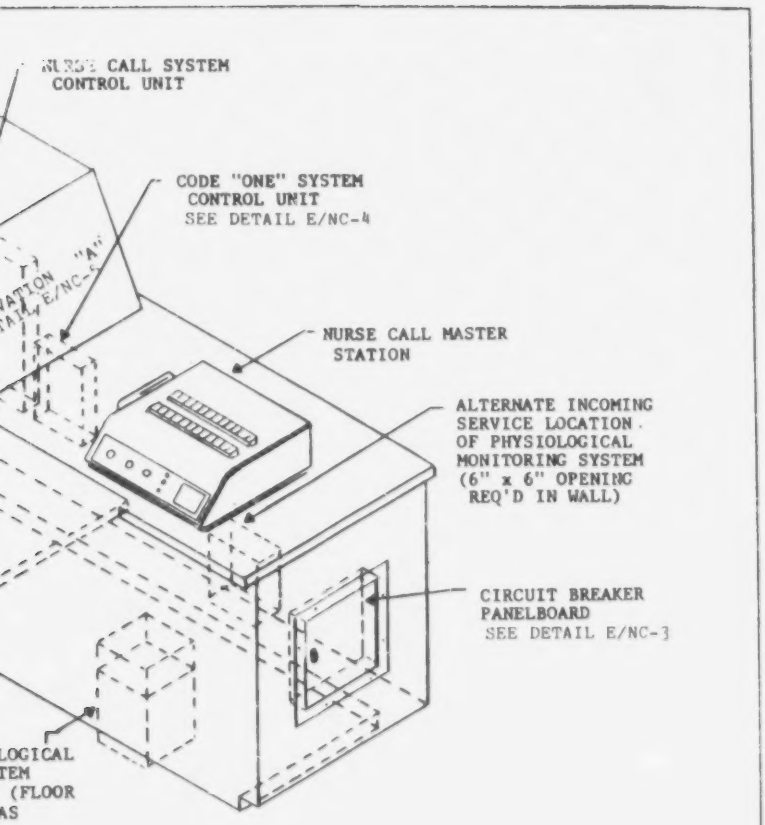
NOTE CONNECT RECEPTACLE GROUNDING CONDUCTOR TO GROUND JACK TERMINAL

E / IP-3



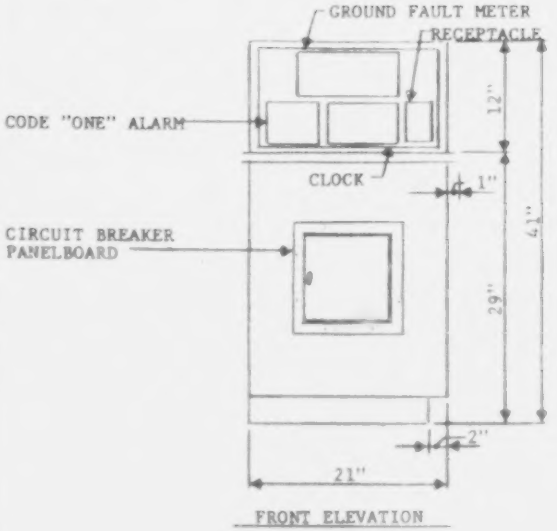
1. SEE DETAIL E/NC-3 FOR NOTES.
2. SEE DETAIL E/NC-2 FOR ELEVATIONS.
3. SEE DETAIL E/NC-17 FOR COLOR CODING OF BO

NURSES CONSOLE

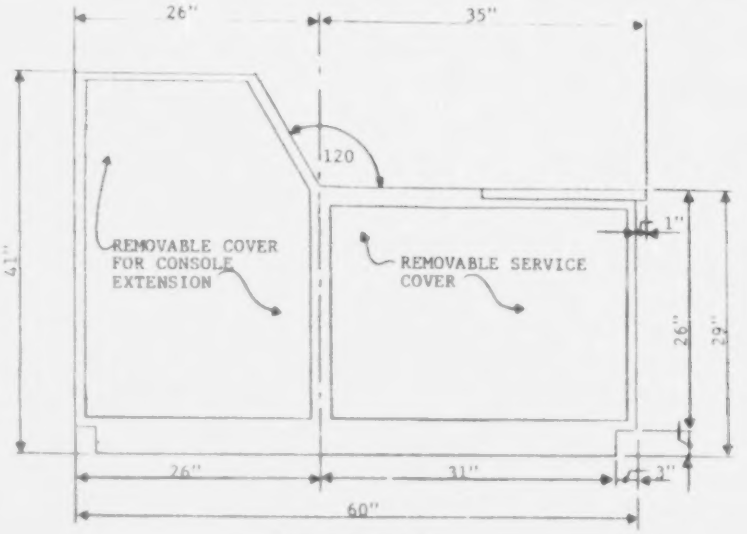

NURSE CALL SYSTEM
CONTROL UNIT
CODE "ONE" SYSTEM
CONTROL UNIT
SEE DETAIL E/NC-4
NURSE CALL MASTER
STATION
ALTERNATE INCOMING
SERVICE LOCATION
OF PHYSIOLOGICAL
MONITORING SYSTEM
(6" x 6" OPENING
REQ'D IN WALL)
CIRCUIT BREAKER
PANELBOARD
SEE DETAIL E/NC-3

ES.

E
NC-1

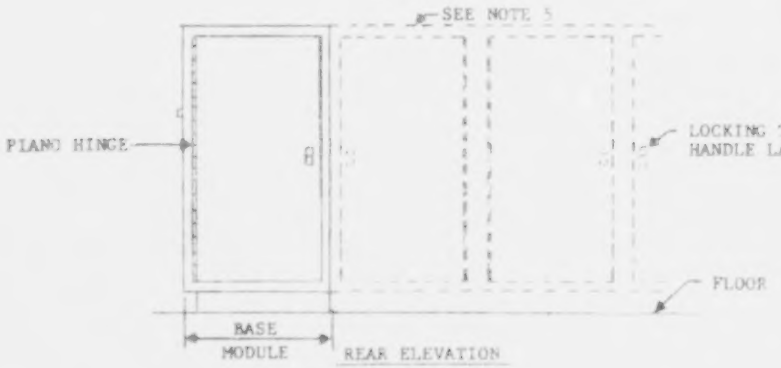


FRONT ELEVATION



SIDE ELEVATION

BASE MODULE SECTION OF CONSOLE

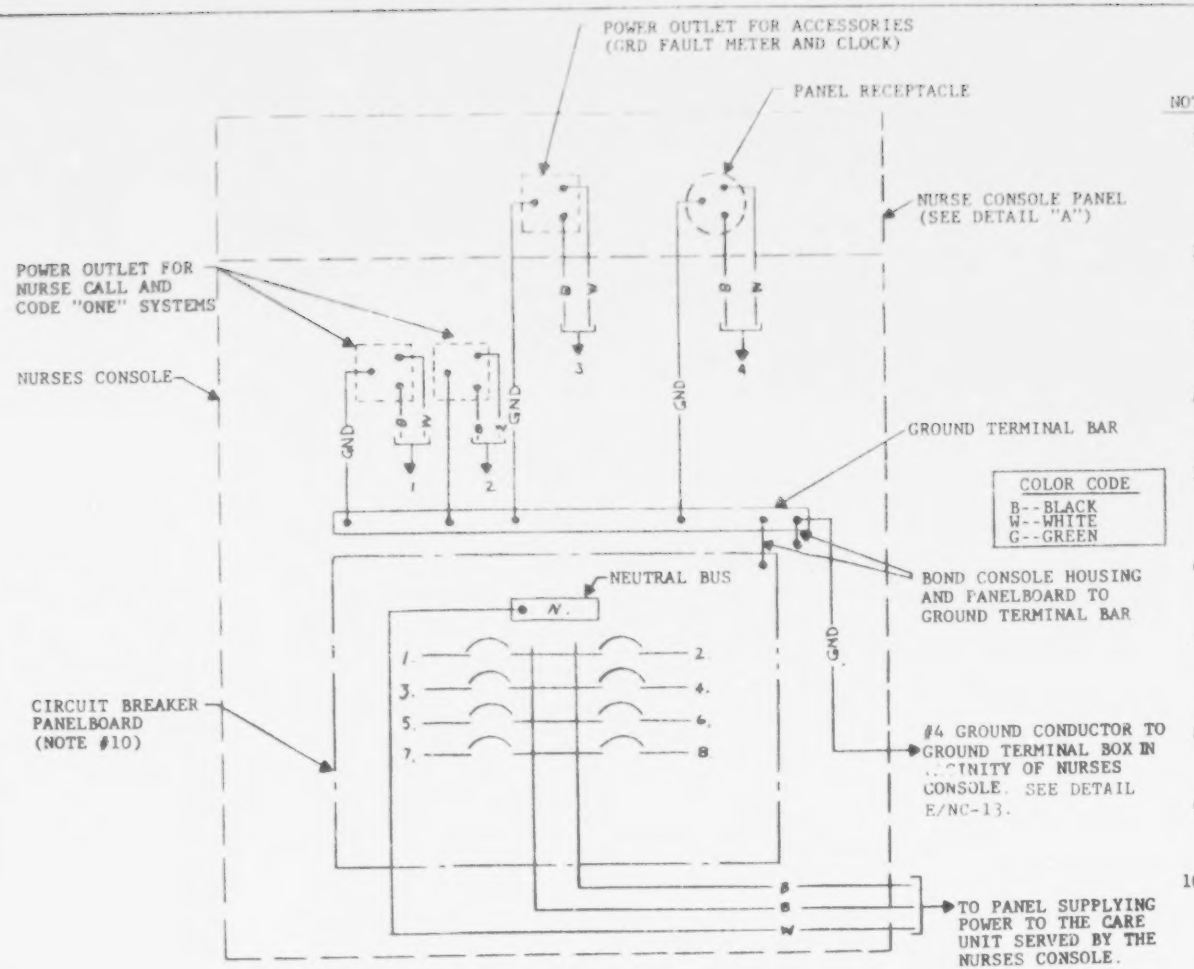


REAR ELEVATION

1. SEE DETAIL E/NC-1 FOR NOTES.
2. SEE DETAIL E/NC-17 FOR COLOR CODING OF BOXES.

NURSES CONSOLE

E
NC 2

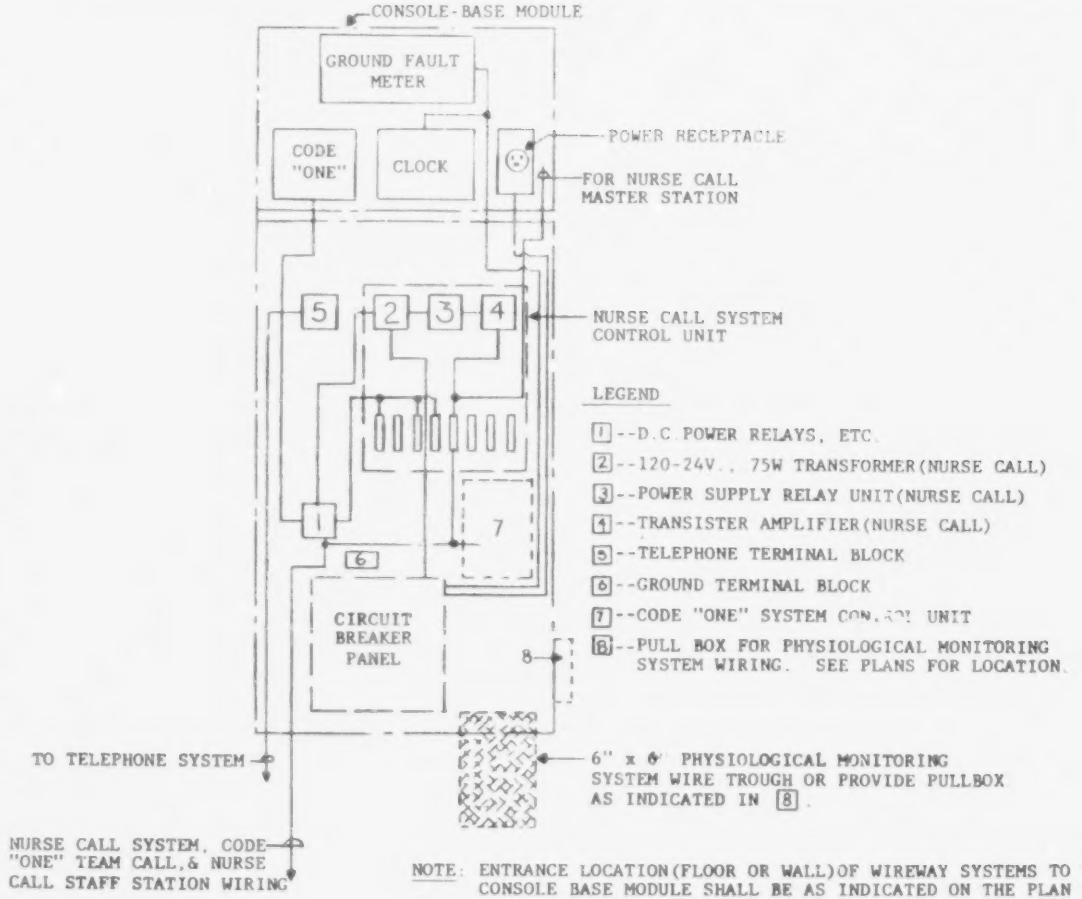

POWER OUTLET FOR ACCESSORIES (GRD FAULT METER AND CLOCK)
PANEL RECEPTACLE
NURSE CONSOLE PANEL (SEE DETAIL "A")
POWER OUTLET FOR NURSE CALL AND CODE "ONE" SYSTEMS
NURSES CONSOLE
GROUND TERMINAL BAR
COLOR CODE
B--BLACK
W--WHITE
G--GREEN
NEUTRAL BUS
BOND CONSOLE HOUSING AND PANELBOARD TO GROUND TERMINAL BAR
CIRCUIT BREAKER PANELBOARD (NOTE #10)
#4 GROUND CONDUCTOR TO GROUND TERMINAL BOX IN VICINITY OF NURSES CONSOLE. SEE DETAIL E/NC-13.
TO PANEL SUPPLYING POWER TO THE CARE UNIT SERVED BY THE NURSES CONSOLE.
GND
N.

NOTES: NURSES CONSOLE

1. ALL BRANCH CIRCUIT WIRING SHALL BE #12 AWG STRANDED CROSS - LINKED POLYETHELENE WITH A MIN. OF 3/64" INSULATION THICKNESS COLOR-CODED AS INDICATED.
2. COLOR-CODING OF CONDUCTORS SHALL BE AN INHERENT PART OF THE INSULATION OR JACKET.
3. ALL GROUNDING WIRING: SINGLE-CONDUCTOR #10 (UNLESS OTHERWISE NOTED) THW-600V COLOR-CODED GREEN.
4. ALL SHEET STEEL SHALL BE A MIN. OF 18 GUAGE OR OF A THICKNESS NECESSARY TO PREVENT UNDUE FLEXING.
5. PORTIONS OF CONSOLE SHOWN DOTTED ARE FOR THE PHYSIOLOGICAL MONITORING EQUIPMENT AND ARE NOT TO BE INCLUDED IN THIS CONTRACT.
6. A PORTABLE AS WELL AS CONSOLE MOUNTED GROUND FAULT METER SHALL BE PROVIDED.
7. CONSOLE IS TO BE OF A BOLT TOGETHER TYPE CONSTRUCTION SO THAT FUTURE PHYSIOLOGICAL MONITORING SECTIONS MAY BE ADDED.
8. FURNISH RECEPTACLE OF THE TWO-POLE, 20 AMP, 3-WIRE GROUNDING "HOSPITAL GRADE" TYPE.
9. CIRCUITS FOR V.A. FURNISHED PHYSIOLOGICAL MONITORING EQUIPMENT (NOT IN CONTRACT).
10. PANELBOARD SHALL BE SINGLE PHASE, 3-WIRE, 120/240V M.L.O. TYPE WITH MIN. 100A MAINS AND PROVIDED WITH 8-IP, 20A TRIP CIRCUIT BREAKERS SHALL POWER CIRCUITS FOR THE BASE MODULE AND FUTURE V.A. FURNISHED CONSOLE EQUIPMENT. CODE "ONE" SYSTEM AND NURSE CALL SYSTEM SHALL BE POWERED FROM DEDICATED CIRCUITS.

E/NC-3

SCHEMATIC WIRING DIAGRAM- NURSES CONSOLE



LEGEND

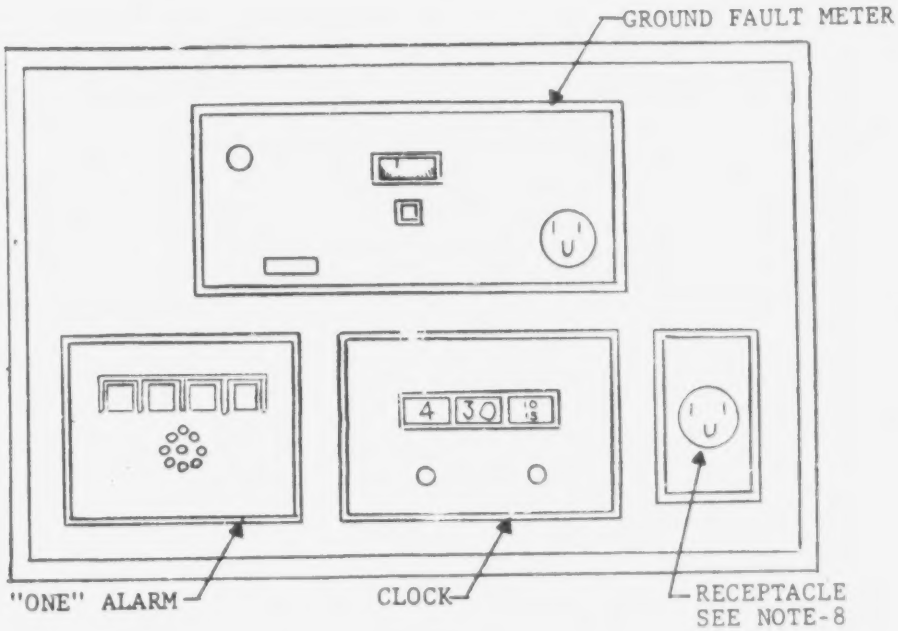
[1]--D.C. POWER RELAYS, ETC.
[2]--120-24V., 75W TRANSFORMER(NURSE CALL)
[3]--POWER SUPPLY RELAY UNIT(NURSE CALL)
[4]--TRANSISTER AMPLIFIER(NURSE CALL)
[5]--TELEPHONE TERMINAL BLOCK
[6]--GROUND TERMINAL BLOCK
[7]--CODE "ONE" SYSTEM CONTROL UNIT
[8]--PULL BOX FOR PHYSIOLOGICAL MONITORING SYSTEM WIRING. SEE PLANS FOR LOCATION.

NOTE: ENTRANCE LOCATION(FLOOR OR WALL)OF WIREWAY SYSTEMS TO THE CONSOLE BASE MODULE SHALL BE AS INDICATED ON THE PLAN DRAWINGS

SEE DETAIL E/NC-17 FOR COLOR CODING OF BOXES.

CONTROL EQUIPMENT DIAGRAM

E
NC-4

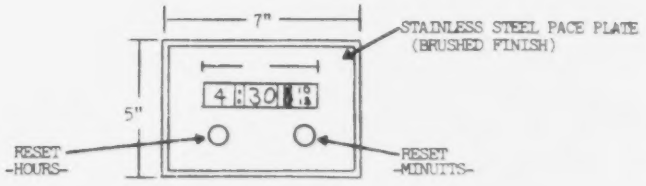


CODE "ONE" ALARM AND RECEPTACLE TO BE REVERSED, AS REQUIRED, TO POSITION RECEPTACLE AT END OF CONSOLE.

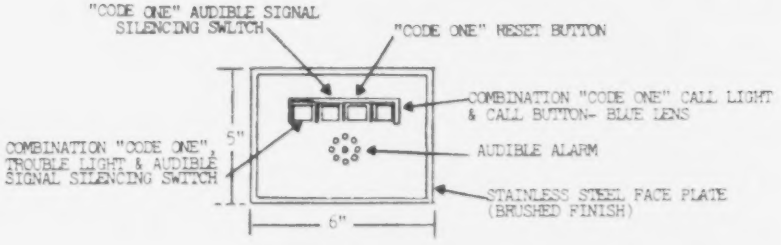
1. SEE DETAIL E/NC-3 FOR NOTES.
2. SEE DETAIL E/NC-6 FOR DIMENSIONS.

ELEVATION "A"- CODE ONE ALARM, CLOCK, GROUND FAULT METER & RECEPTACLE

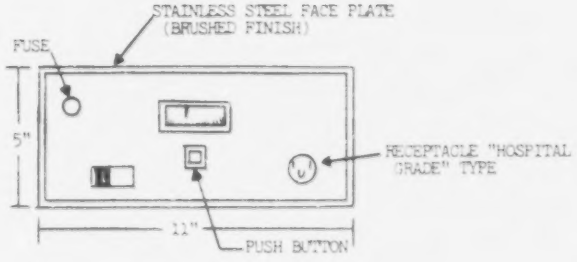
E
NC-5



CLOCK



CODE ONE ALARM

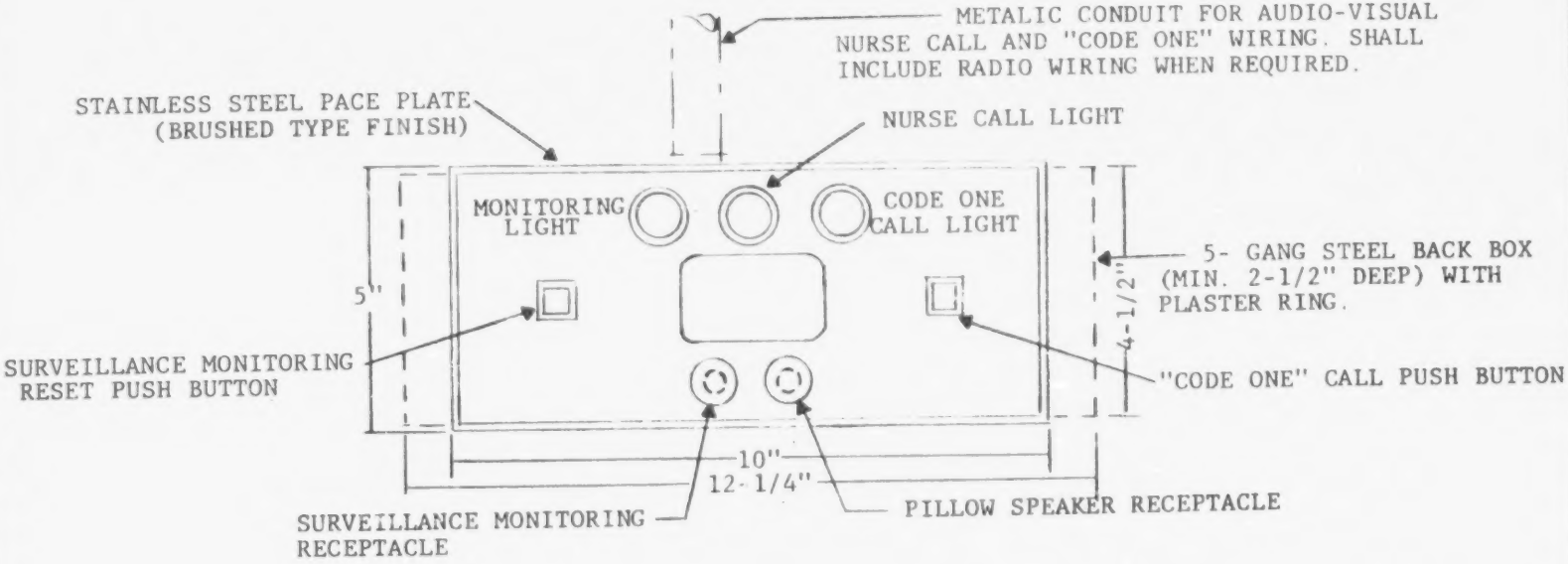


GROUND FAULT METER

NOTE:
WHEN A NURSE CONSOLE IS NOT PROVIDED FURNISH AND INSTALL A RECESSED WALL MOUNTED TYPE "CODE ONE" ALARM IN A SUITABLE BACK BOX WHERE INDICATED ON THE PLANS.

CLOCK, "CODE ONE" ALARM, AND GROUND FAULT METER FOR USE WITH NURSE CONSOLES

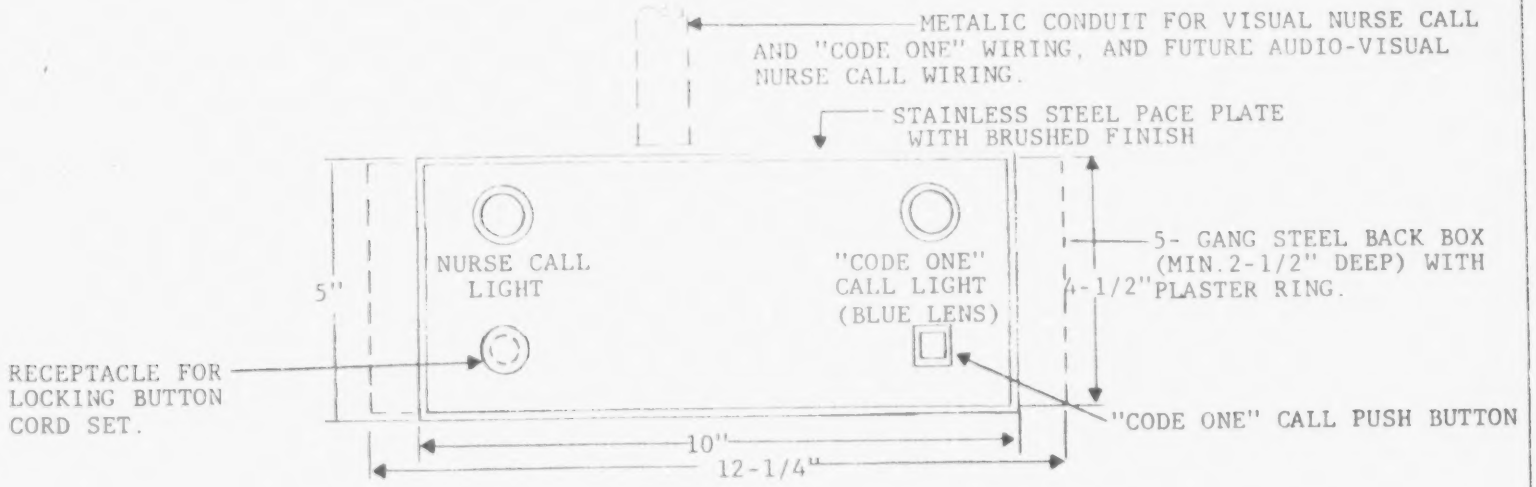
E
NC-6


METALIC CONDUIT FOR AUDIO-VISUAL NURSE CALL AND "CODE ONE" WIRING. SHALL INCLUDE RADIO WIRING WHEN REQUIRED.
STAINLESS STEEL PACE PLATE (BRUSHED TYPE FINISH)
NURSE CALL LIGHT
MONITORING LIGHT
CODE ONE CALL LIGHT
5- GANG STEEL BACK BOX (MIN. 2-1/2" DEEP) WITH PLASTER RING.
5"
4-1/2"
SURVEILLANCE MONITORING RESET PUSH BUTTON
"CODE ONE" CALL PUSH BUTTON
10"
12-1/4"
SURVEILLANCE MONITORING RECEPTACLE
PILLOW SPEAKER RECEPTACLE

1. SEE DETAIL E/P-4 FOR LOCATION IN P.B.P.U. TYPE 3.

NURSE CALL & CODE ONE CALL UNIT -

E
NC-7

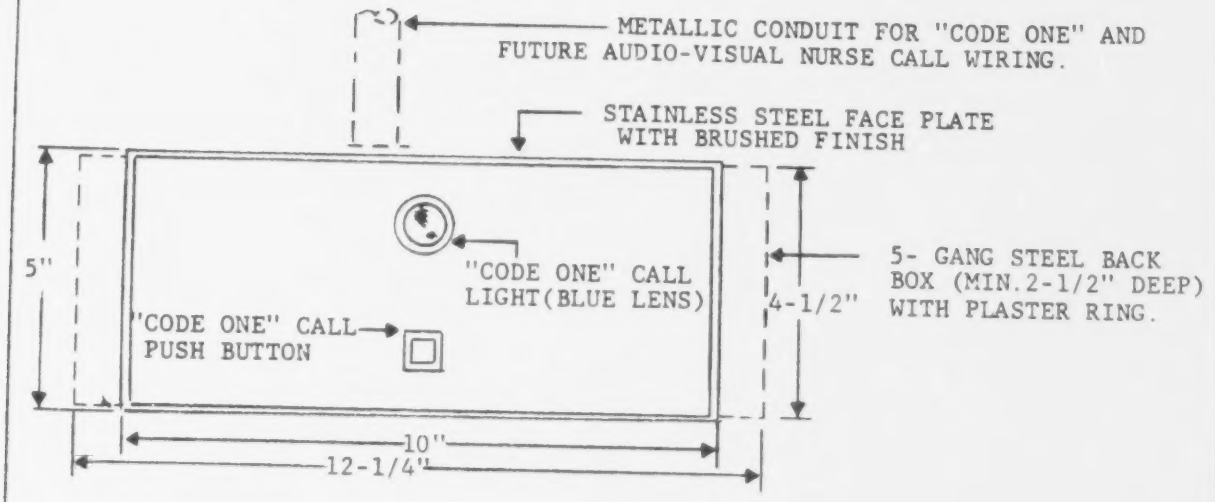

METALIC CONDUIT FOR VISUAL NURSE CALL AND "CODE ONE" WIRING, AND FUTURE AUDIO-VISUAL NURSE CALL WIRING.
STAINLESS STEEL PACE PLATE WITH BRUSHED FINISH
NURSE CALL LIGHT
"CODE ONE" CALL LIGHT (BLUE LENS)
5- GANG STEEL BACK BOX (MIN.2-1/2" DEEP) WITH PLASTER RING.
5"
4-1/2"
RECEPTACLE FOR LOCKING BUTTON CORD SET.
"CODE ONE" CALL PUSH BUTTON
10"
12-1/4"

NOTE1. BACK BOX, CONDUIT, & WIRING SHALL BE SAME AS FOR NURSE CALL AND "CODE ONE" CALL UNIT TYPE "B" TO FACILITATE FUTURE CONVERSIONS.

2. SEE DETAIL E/P-4 FOR LOCATION IN P.B.P.U. TYPE 3A.

NURSE CALL & "CODE ONE" CALL UNIT -

E
NC-8

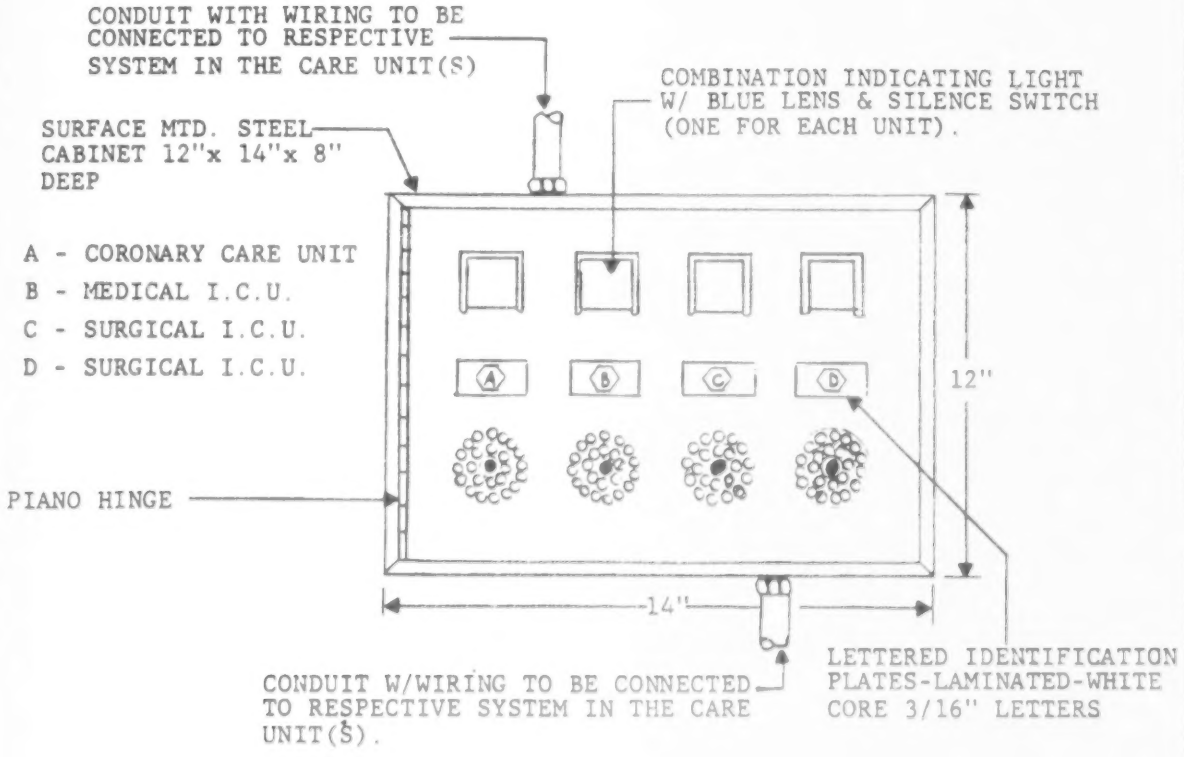

METALLIC CONDUIT FOR "CODE ONE" AND FUTURE AUDIO-VISUAL NURSE CALL WIRING.
STAINLESS STEEL FACE PLATE WITH BRUSHED FINISH
"CODE ONE" CALL LIGHT(BLUE LENS)
"CODE ONE" CALL PUSH BUTTON
5"
4-1/2"
5- GANG STEEL BACK BOX (MIN.2-1/2" DEEP) WITH PLASTER RING.
10"
12-1/4"

NOTES: 1. BACK BOX & CONDUIT SHALL BE SAME AS FOR NURSE CALL AND "CODE ONE" CALL UNIT TYPE "B" TO FACILITATE FUTURE CONVERSIONS.

2. SEE DETAIL E/P-4 FOR LOCATION IN P.B.P.U. TYPE 3B.

"CODE ONE" CALL UNIT

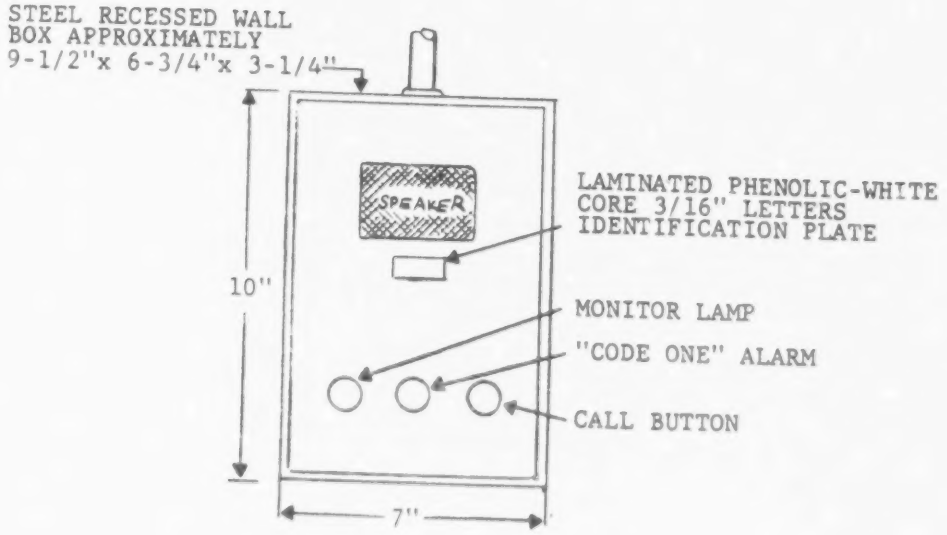
E
NC-9


CONDUIT WITH WIRING TO BE CONNECTED TO RESPECTIVE SYSTEM IN THE CARE UNIT(S)
COMBINATION INDICATING LIGHT W/ BLUE LENS & SILENCE SWITCH (ONE FOR EACH UNIT).
SURFACE MTD. STEEL CABINET 12"x 14"x 8" DEEP
A - CORONARY CARE UNIT
B - MEDICAL I.C.U.
C - SURGICAL I.C.U.
D - SURGICAL I.C.U.
A
B
C
D
12"
PIANO HINGE
14"
CONDUIT W/WIRING TO BE CONNECTED TO RESPECTIVE SYSTEM IN THE CARE UNIT(S).
LETTERED IDENTIFICATION PLATES-LAMINATED-WHITE CORE 3/16" LETTERS

NOTE: LOCATE ANNUNCIATOR IN TELEPHONE SWBD. RM. OR WHERE OTHERWISE INDICATED ON THE PLANS.

CODE "ONE" ANNUNCIATOR PANEL

E
NC-10



NOTE: LOCATE STATION IN NEAREST NURSES STATION AND RESIDENT DR.'S ROOM OR WHERE OTHERWISE INDICATED ON THE PLANS.

NURSE CALL STAFF STATION

E
NC-11

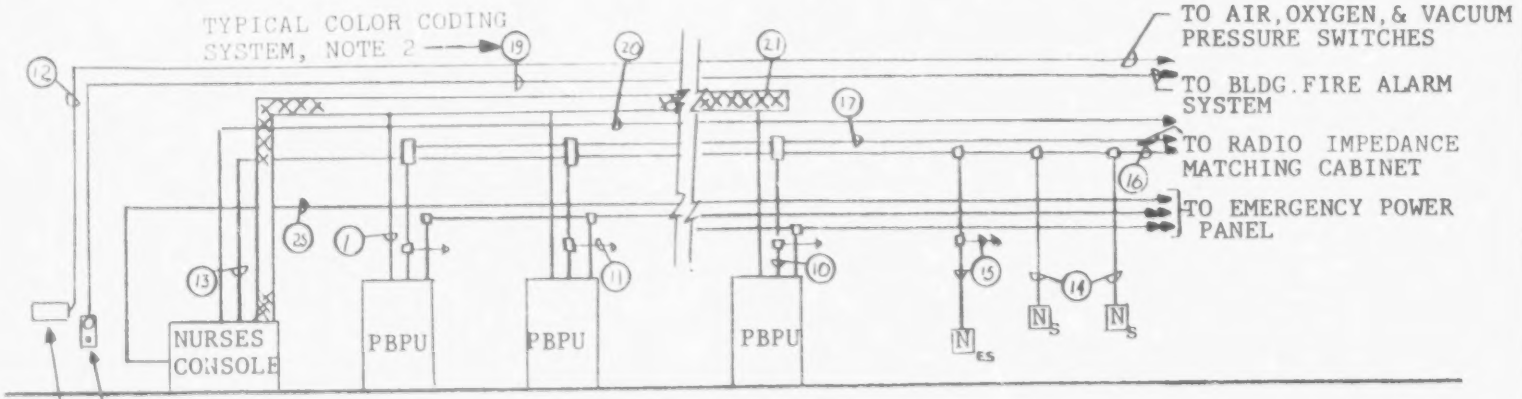
SYMBOLS

N_{ES} --NURSE CALL EMERGENCY STATION AND AUXILIARY SPEAKER

N_{S} --COMBINATION NURSE CALL & CODE "ONE" CALL STAFF STATION AT RESIDENT DOCTOR'S RM., NEAREST NURSE'S STATION, AND AS INDICATED. (SEE DETAIL E/NC-11)

--CODE INDICATING FIRE ALARM CHIME, LIGHT AND "SILENCE" SWITCH, CONNECTED TO THE BUILDING FIRE ALARM SYSTEM. (FURNISH LOW VOLTAGE POWER TRANS.& RELAY WHERE REQUIRED).

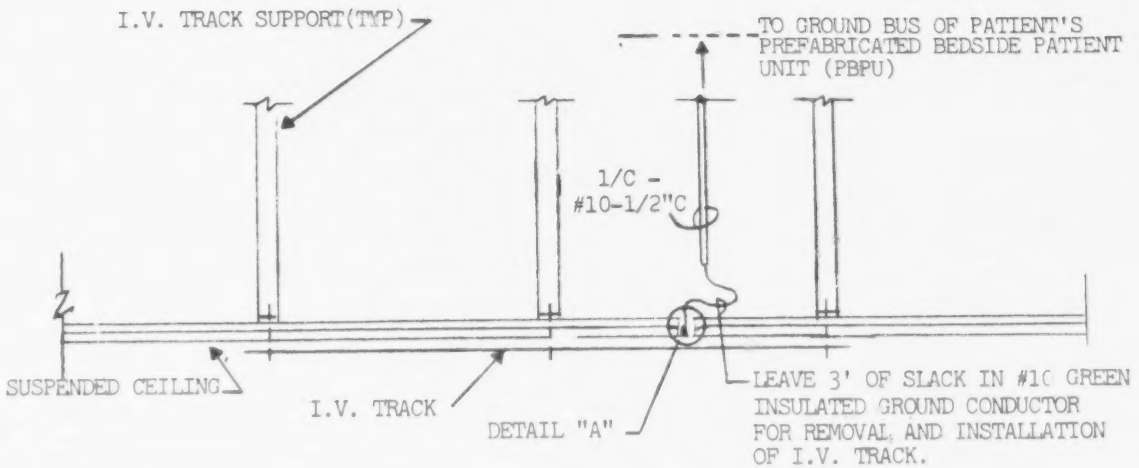
PBPU--'PREFABRICATED BEDSIDE PATIENT UNIT' AT PATIENT'S BEDSIDE (SEE PBPU-TYPE DETAIL DWG.)

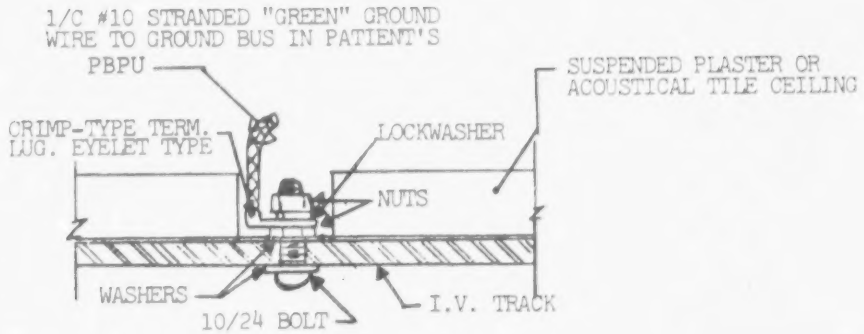


1. GROUNDING SYSTEM SHALL BE INSTALLED IN EACH PATIENT VACINITY, UTILIZING THE REFERENCE GROUNDING BUS IN THE RESPECTIVE PBPU. REFER TO NFPA STANDARD 76B.
2. SEE DETAIL E/NC-17 FOR COLOR CODING OF BOXES.

TYPICAL INTENSIVE CARE SYSTEMS ELEVATION DIAGRAM

E
NC-12

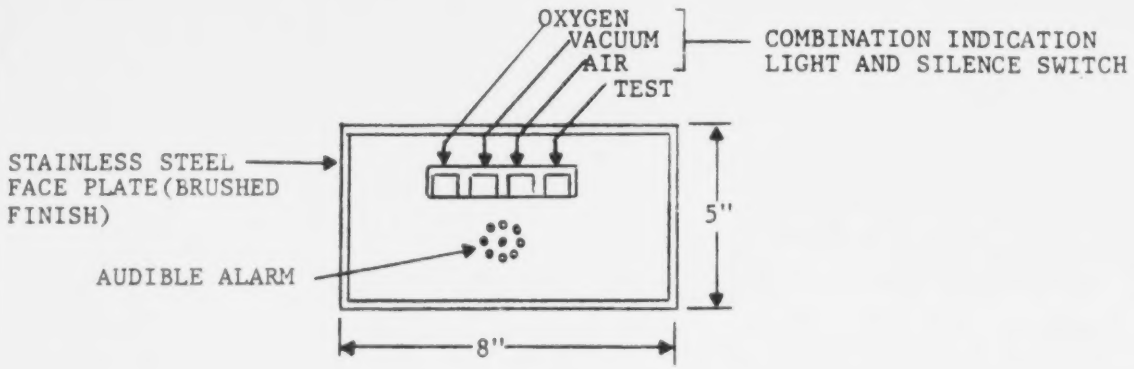

I.V. TRACK SUPPORT(TYP)
TO GROUND BUS OF PATIENT'S PREFABRICATED BEDSIDE PATIENT UNIT (PBPU)
1/C - #10-1/2"C
SUSPENDED CEILING
I.V. TRACK
DETAIL "A"
LEAVE 3' OF SLACK IN #10 GREEN INSULATED GROUND CONDUCTOR FOR REMOVAL AND INSTALLATION OF I.V. TRACK.



DETAIL "A"

I.V. TRACK GROUNDING DETAILS

E
NC-13



NOTE: ALARM SHALL BE FURNISHED WITH BACK BOX FOR RECESSED OR SURFACE WALL MTG. AS REQUIRED.

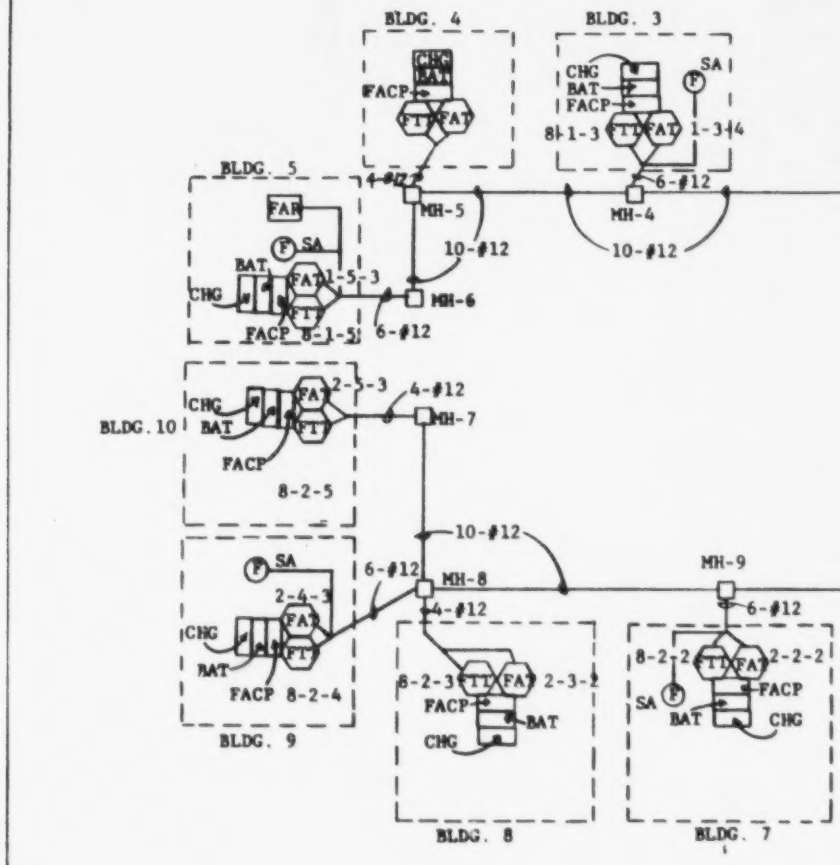
E
NC-14

GAS FAILURE ALARM

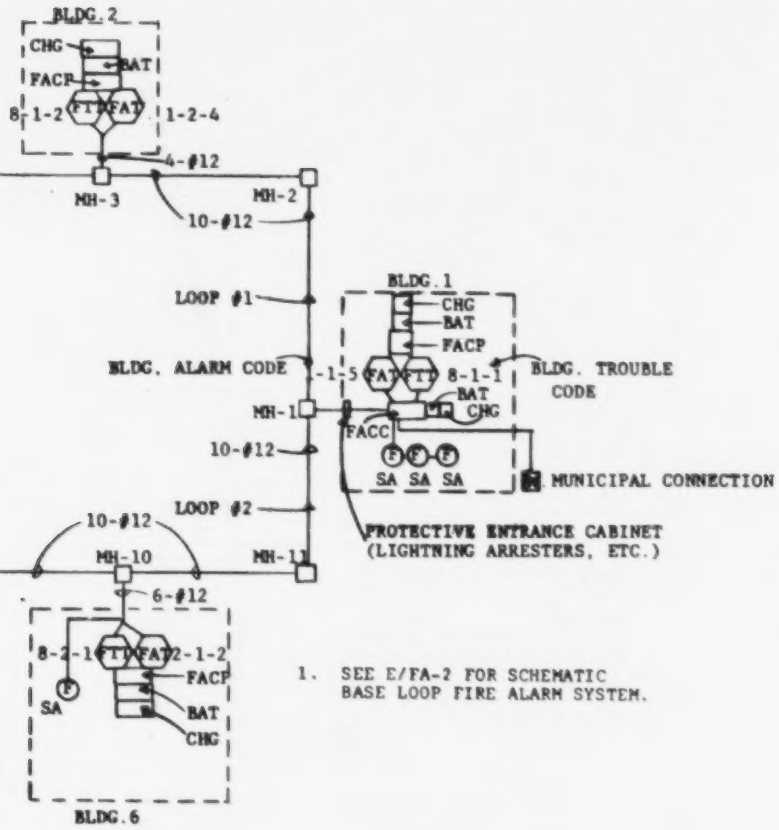
COLOR CODING OF OUTLET BOXES FOR EACH SYSTEM

	WIRE AND CONDUIT	DESCRIPTION	OUTLET BOX COLOR
(1)	1-1/2" C	FOR PHYSIOLOGICAL MONITORING WIRING (WIRING FURNISHED BY OTHERS AND INSTALLED BY CONTRACTOR) TYPE 3 PBPU ONLY.	BROWN
(2)			
(3)	1-#10 GREEN, 1/2"C	I.V. TRACK GROUND	GREEN
(4)	2-#10, 3/4"C	POWER SUPPLY TO PREFABRICATED BEDSIDE PATIENT UNIT	
(5)	3-#10, 3/4"C	POWER SUPPLY TO PREFABRICATED UNIT(S)	
(6)	1-#4 GREEN, 3/4"C	GROUND CONDUCTOR	GREEN
(7)	2-#4 GREEN, 3/4"C	GROUND CONDUCTORS	GREEN
(8)			
(9)	1" C	NURSE CALL SYSTEM WIRING & CODE "ONE" TEAM CALL WIRING	NURSE CALL: (YELLOW)
(10)	1" C	NURSE CALL, RADIO, & CODE "ONE" TEAM CALL WIRING	
(11)	3/4" C	WIRING FOR NURSE CALL & CODE "ONE" TEAM CALL DOME LIGHTS	CODE "ONE": (BLUE)
(12)	1-1/4" C	NURSE CALL SYSTEM WIRING & CODE "ONE" TEAM CALL WIRING	
(13)	1-1/2" C	NURSE CALL SYSTEM WIRING, CODE"ONE"TEAM CALL WIRING, & NURSE CALL STAFF STATION WIRING	RADIO: (ORANGE)
(14)	3/4" C	CODE "ONE" TEAM CALL WIRING & NURSE CALL STAFF STATION WRNG.	
(15)	3/4" C	AUDIO-VISUAL NURSE CALL EMER.STA.WRNG. TO PATIENT'S TOILETS	
(16)	3/4" C	CODE"ONE"TEAM CALL WRNG TO ANNUNCIATOR AT TELEPHONE SWBD RM.	
(17)	3/4" C	RADIO WIRING (CORONARY CARE UNITS ONLY)	
(18)			
(19)	2-1/c #12, 3/4" C	FOR FIRE ALARM INDICATOR NEAR NURSES CONSOLE	RED
(20)	1" E.C.	NURSES CONSOLE TELEPHONE	
(21)	6"x 6" WIRING TROUGH	FOR PHYSIOLOGICAL MONITORING SYSTEM (TROUGH TO HAVE HINGED TYPE COVER OF 4' SECTIONS-MAXIMUM) OR EXTEND 1-1/2"E.C. FROM EACH PBPU TO TERMINAL BOX AT NURSES CONSOLE.	BROWN
(22)	6-1/c #12, 1" C	WIRING FOR GAS FAILURE ALRM.PRESSURE SW.(AIR,OXYGEN,VACUUM)	WHITE
(23)			
(24)	2-#4;1-#6 GRD.1 1/4"C	X-RAY RECEPTACLE WIRING TO X-RAY PANEL	
(25)	3- #10, 3/4" C	POWER SUPPLY TO NURSES CONSOLE	

E
NC-15

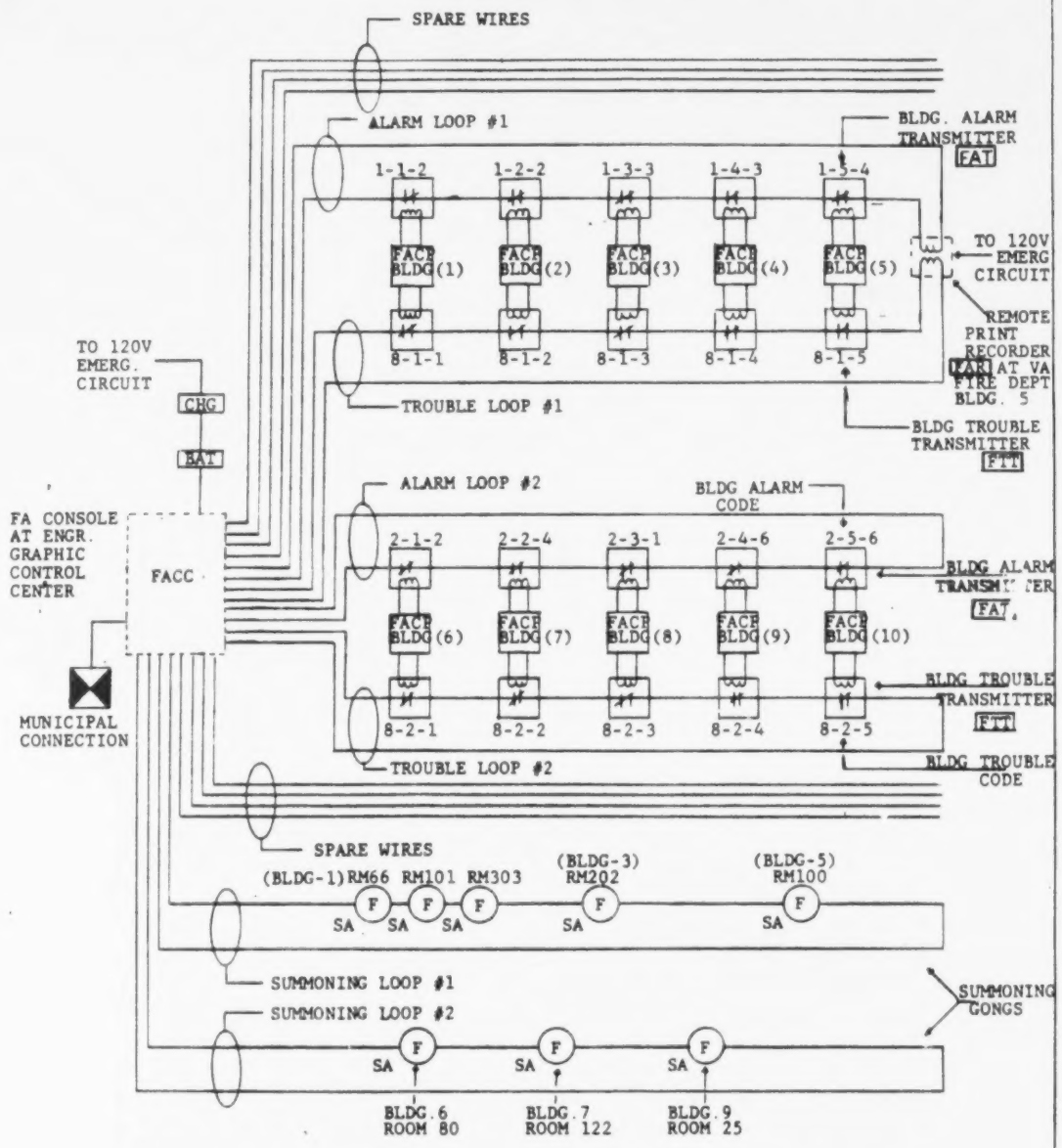


BASE LOOP FIRE ALARM - SITE PLAN (TYPICAL)



1. SEE E/FA-2 FOR SCHEMATIC BASE LOOP FIRE ALARM SYSTEM.

E
FA-1

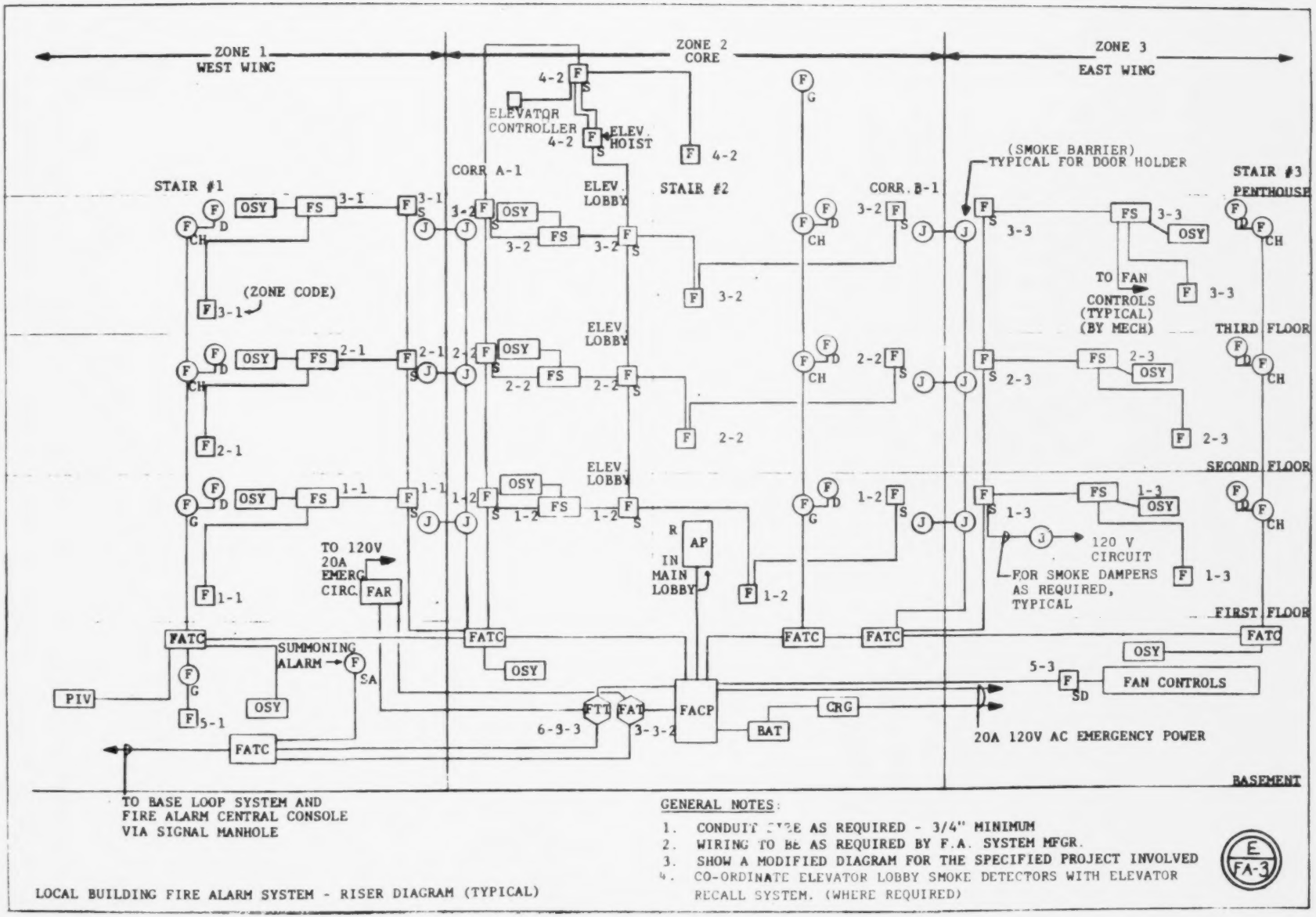


DESIGNER NOTES:

1. MAXIMUM NUMBER OF TRANSMITTERS PER LOOP NOT TO EXCEED 20 ON NEW INSTALLATION.
2. MAXIMUM NUMBER OF SUMMONING GONGS PER LOOP NOT TO EXCEED 15 ON NEW INSTALLATION.
3. ALL TRANSMITTERS ARE LOCAL ENERGY TYPE.
4. TYPE B FORM 4 SYSTEM (AUTOMATIC RETRANSMISSION).

BASE LOOP FIRE ALARM SYSTEM - TYPICAL SCHEMATIC

E
FA-2

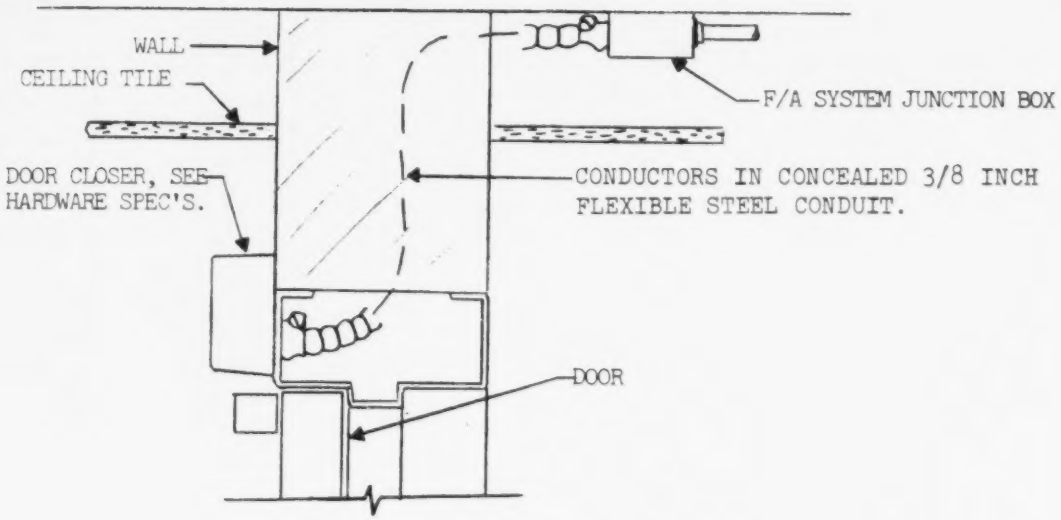


GENERAL NOTES:

1. CONDUIT SIZE AS REQUIRED - 3/4" MINIMUM
2. WIRING TO BE AS REQUIRED BY F.A. SYSTEM MFGR.
3. SHOW A MODIFIED DIAGRAM FOR THE SPECIFIED PROJECT INVOLVED
4. CO-ORDINATE ELEVATOR LOBBY SMOKE DETECTORS WITH ELEVATOR RECALL SYSTEM. (WHERE REQUIRED)

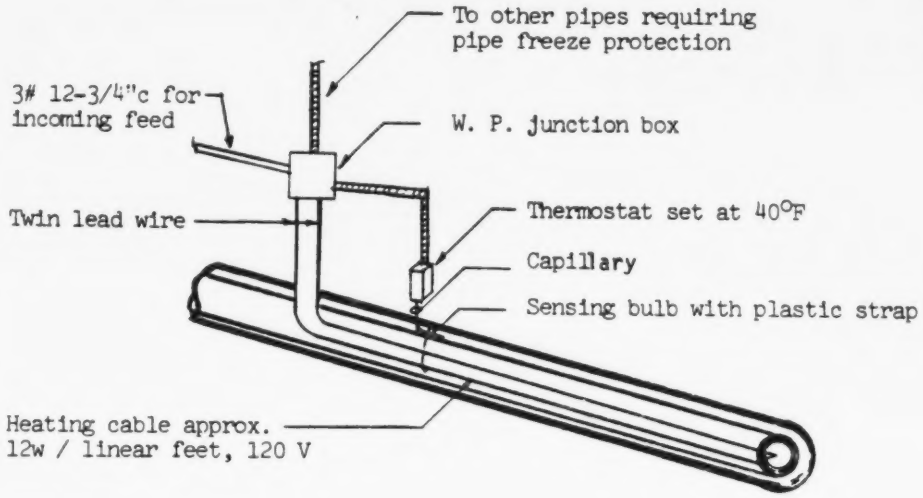
E
FA-3

LOCAL BUILDING FIRE ALARM SYSTEM - RISER DIAGRAM (TYPICAL)



"EDR" CONNECTION

E
FA-4

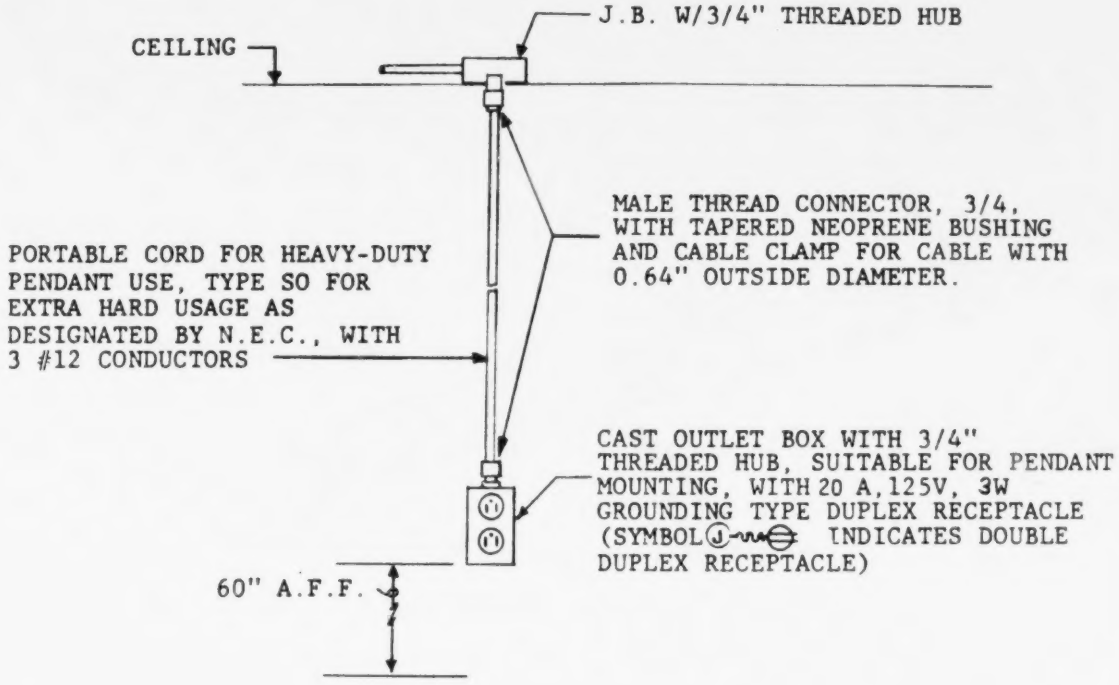


NOTES

1. Shall be complete assembly consisting of heating cable, thermostat and sensing bulb.
2. Sensing bulb shall be installed beneath the mechanical insulation and on opposite side of the heating cable.
3. Heating cables shall extend length of all exposed pipes. Run cables in straight parallel path along bottom of pipe. Do not overlap the heating cables.
4. Provide snap switch disconnect in W. P. enclosure on line side of thermostat. Switch shall have locking provisions.
5. For exact length of heat pipe cables, see mechanical drawings.

HEATING CABLE DETAIL

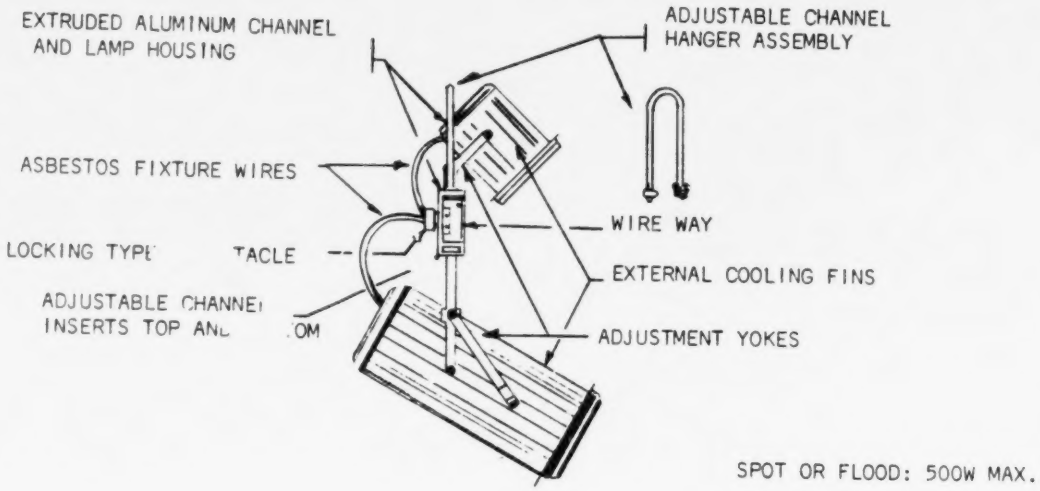
E
M-1


J.B. W/3/4" THREADED HUB
CEILING
MALE THREAD CONNECTOR, 3/4, WITH TAPERED NEOPRENE BUSHING AND CABLE CLAMP FOR CABLE WITH 0.64" OUTSIDE DIAMETER.
PORTABLE CORD FOR HEAVY-DUTY PENDANT USE, TYPE SO FOR EXTRA HARD USAGE AS DESIGNATED BY N.E.C., WITH 3 #12 CONDUCTORS
CAST OUTLET BOX WITH 3/4" THREADED HUB, SUITABLE FOR PENDANT MOUNTING, WITH 20 A, 125V, 3W GROUNDING TYPE DUPLEX RECEPTACLE (SYMBOL J INDICATES DOUBLE DUPLEX RECEPTACLE)
60" A.F.F.

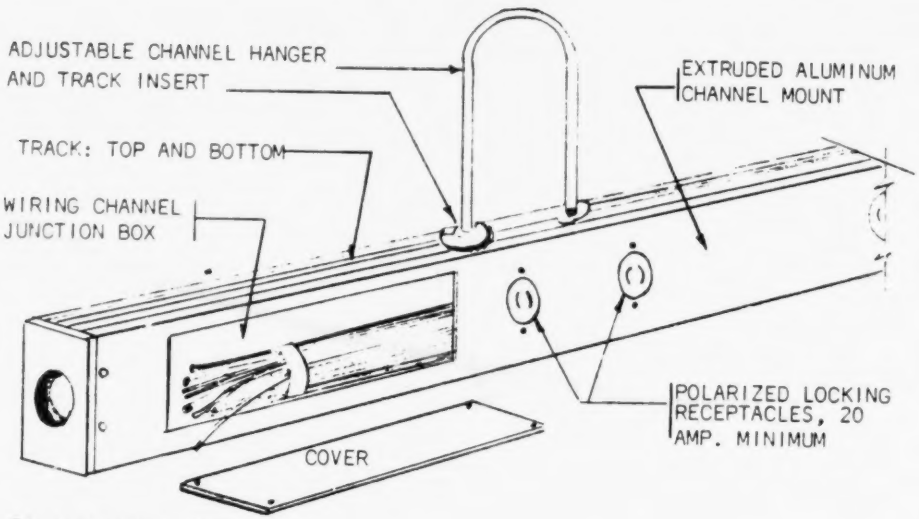
NOTE: OUTLET BOXES USED FOR SUPPORT OF PENDANT OR CEILING MOUNTED FIXTURES SHALL BE SUPPORTED BY THREADED ROD FROM 5/8" STRUCTURAL CHANNEL WITH CAPTIVE NUTS CROSSING TWO ADJACENT CEILING JOISTS AND ATTACHED THERETO. WHERE OUTLET BOXES FOR WIRING ARE NOT REQUIRED, THREADED ROD SHALL EXTEND THROUGH CEILING TO SUPPORT STEMS OR TO FIXTURE HOUSING. HOOKS USED TO SUPPORT FIXTURES SHALL HAVE SAFETY LATCHES.

PENDANT MOUNTED DUPLEX RECEPTACLE (SYMBOL: J)

E
M-2



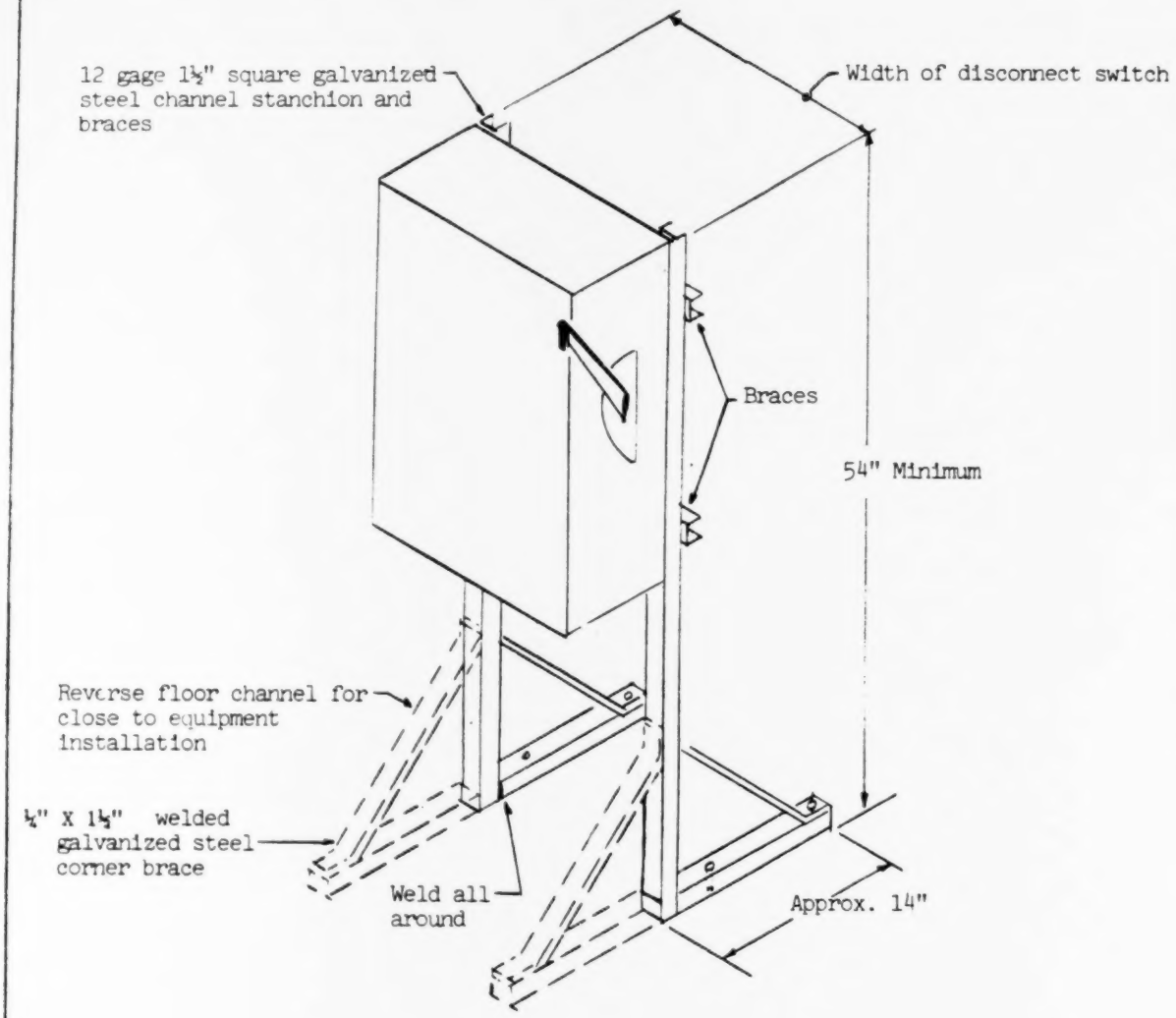
SPOT OR FLOOD: 500W MAX.


ADJUSTABLE CHANNEL HANGER AND TRACK INSERT
EXTRUDED ALUMINUM CHANNEL MOUNT
TRACK: TOP AND BOTTOM
WIRING CHANNEL JUNCTION BOX
POLARIZED LOCKING RECEPTACLES, 20 AMP. MINIMUM
COVER

30 CIRCUITS - MAX. IN CHANNEL

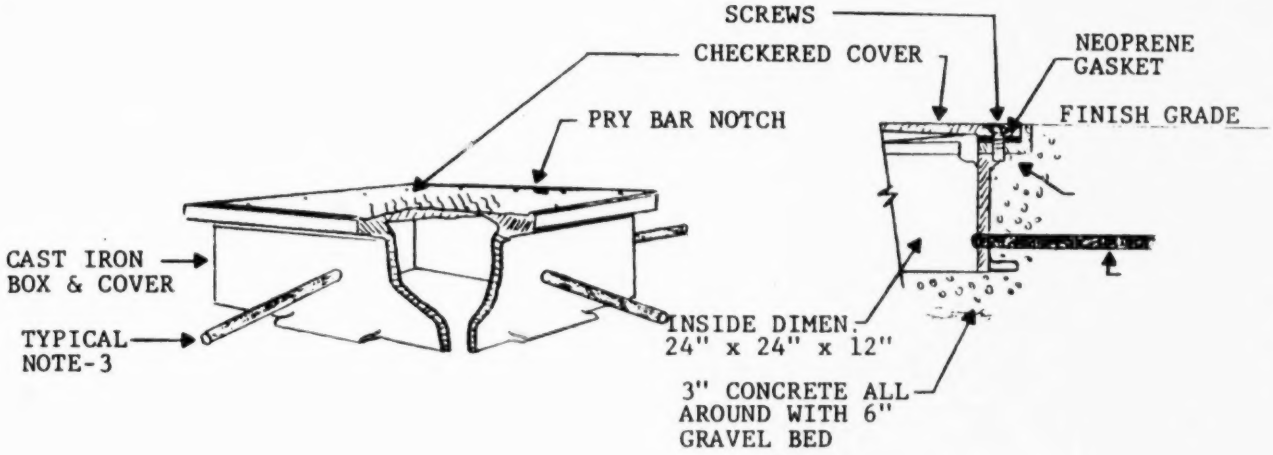
TEASER PLUGGING STRIP DETAILS

E
M-3


12 gage 1½" square galvanized steel channel stanchion and braces
Width of disconnect switch
Braces
54" Minimum
Reverse floor channel for close to equipment installation
¼" X 1½" welded galvanized steel corner brace
Weld all around
Approx. 14"

CHANNEL MOUNTED DISCONNECT SWITCH DETAIL

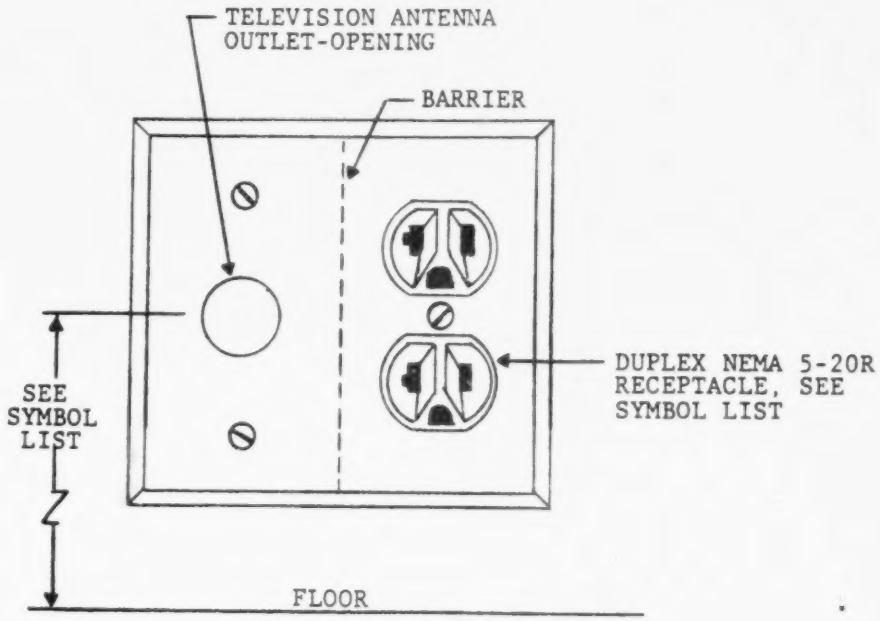
E
M-4



1. FINISH SHALL BE HOT DIP GALVANIZED
2. SCREWS- STAINLESS STEEL TYPE
3. 1" RIGID STEEL, EXTEND 18" BEYOND PULLBOX & CAP.

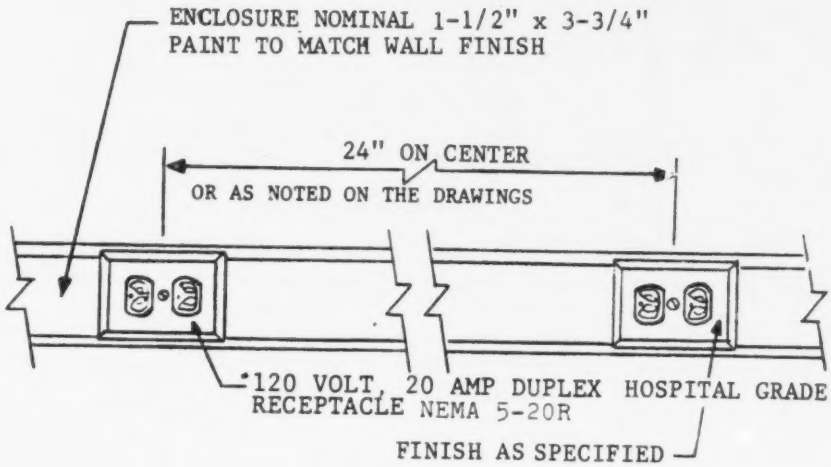
FLUSH PULLBOX (NEMA 3R)

E
M-5



COMBINATION TELEVISION ANTENNA OUTLET AND RECEPTACLE

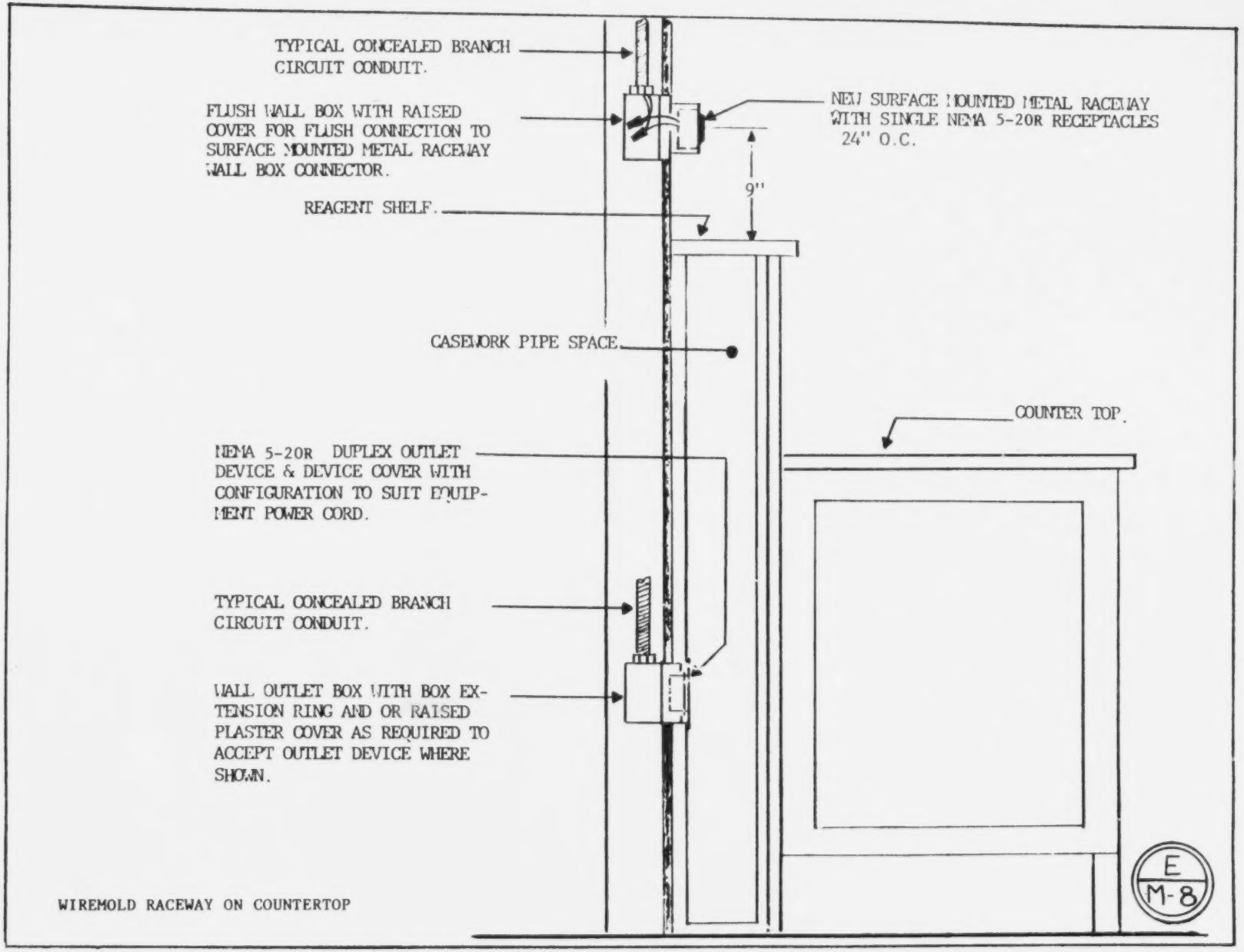
E
M-6


ENCLOSURE NOMINAL 1-1/2" x 3-3/4"
PAINT TO MATCH WALL FINISH
24" ON CENTER
OR AS NOTED ON THE DRAWINGS
120 VOLT, 20 AMP DUPLEX HOSPITAL GRADE
RECEPTACLE NEMA 5-20R
FINISH AS SPECIFIED

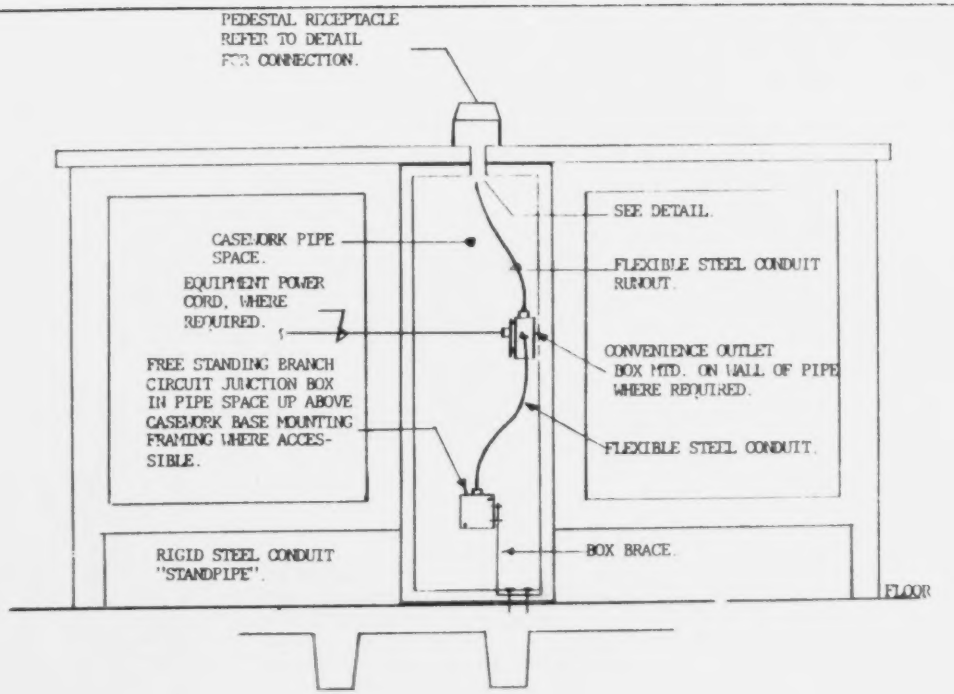
EACH DUPLEX RECEPTACLE ON DIFFERENT CIRCUIT - IF THREE CIRCUITS IN PLUGMOLD EVERY THIRD RECEPTACLE ON DIFFERENT CIRCUITS, ETC.

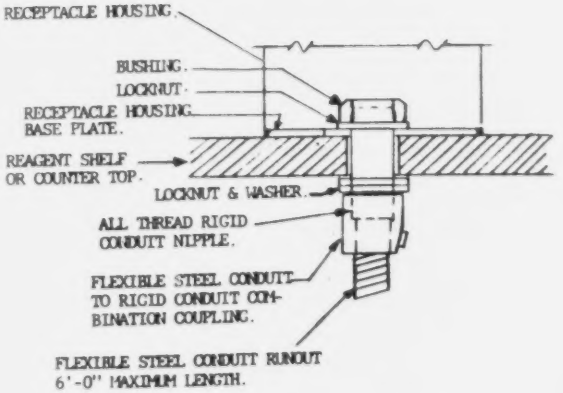
PLUGMOLD STRIP

E
M-7


TYPICAL CONCEALED BRANCH CIRCUIT CONDUIT.
FLUSH WALL BOX WITH RAISED COVER FOR FLUSH CONNECTION TO SURFACE MOUNTED METAL RACEWAY WALL BOX CONNECTOR.
NEW SURFACE MOUNTED METAL RACEWAY WITH SINGLE NEMA 5-20R RECEPTACLES 24" O.C.
9"
REAGENT SHELF.
CASEWORK PIPE SPACE.
COUNTER TOP.
NEMA 5-20R DUPLEX OUTLET DEVICE & DEVICE COVER WITH CONFIGURATION TO SUIT EQUIPMENT POWER CORD.
TYPICAL CONCEALED BRANCH CIRCUIT CONDUIT.
WALL OUTLET BOX WITH BOX EXTENSION RING AND OR RAISED PLASTER COVER AS REQUIRED TO ACCEPT OUTLET DEVICE WHERE SHOWN.
E
M-8

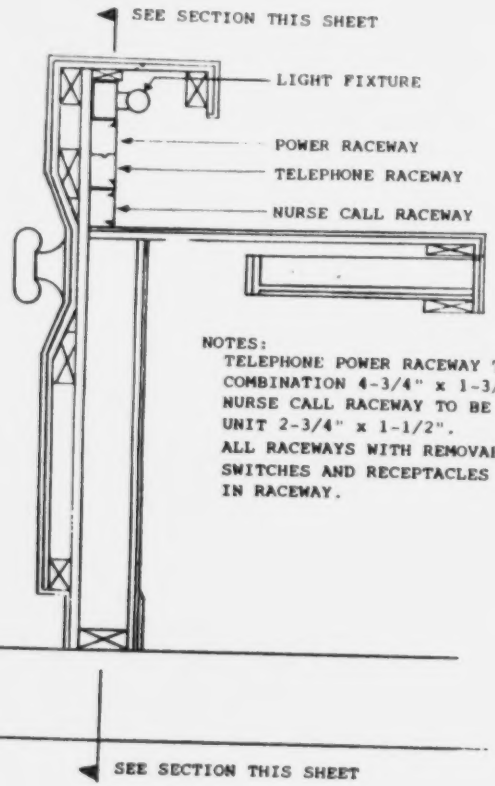
WIREMOLD RACEWAY ON COUNTERTOP



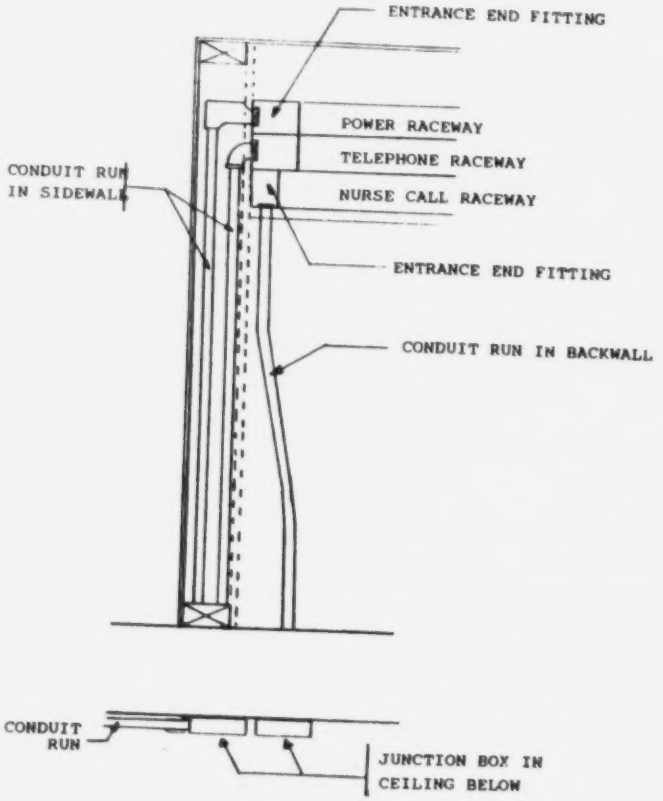


E
M-9

PEDESTAL RECEPTACLE MOUNTING DETAIL

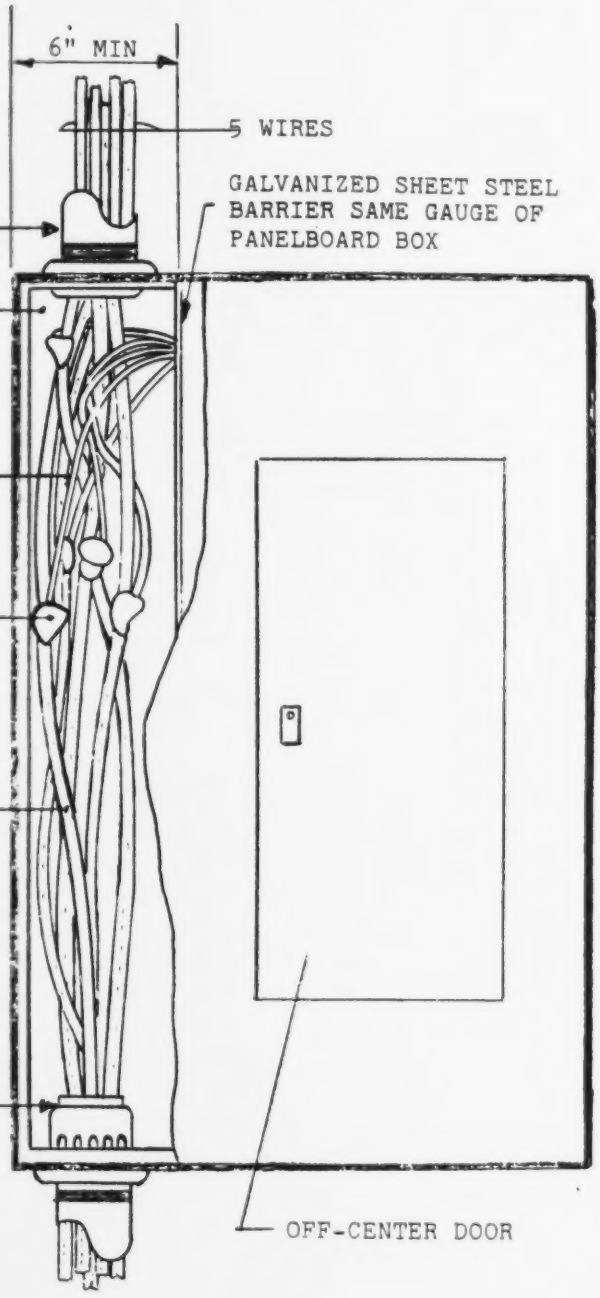


NOTES:
TELEPHONE POWER RACEWAY TO BE COMBINATION 4-3/4" x 1-3/4".
NURSE CALL RACEWAY TO BE SEPARATE UNIT 2-3/4" x 1-1/2".
ALL RACEWAYS WITH REMOVABLE COVER. SWITCHES AND RECEPTACLES MOUNTED IN RACEWAY.



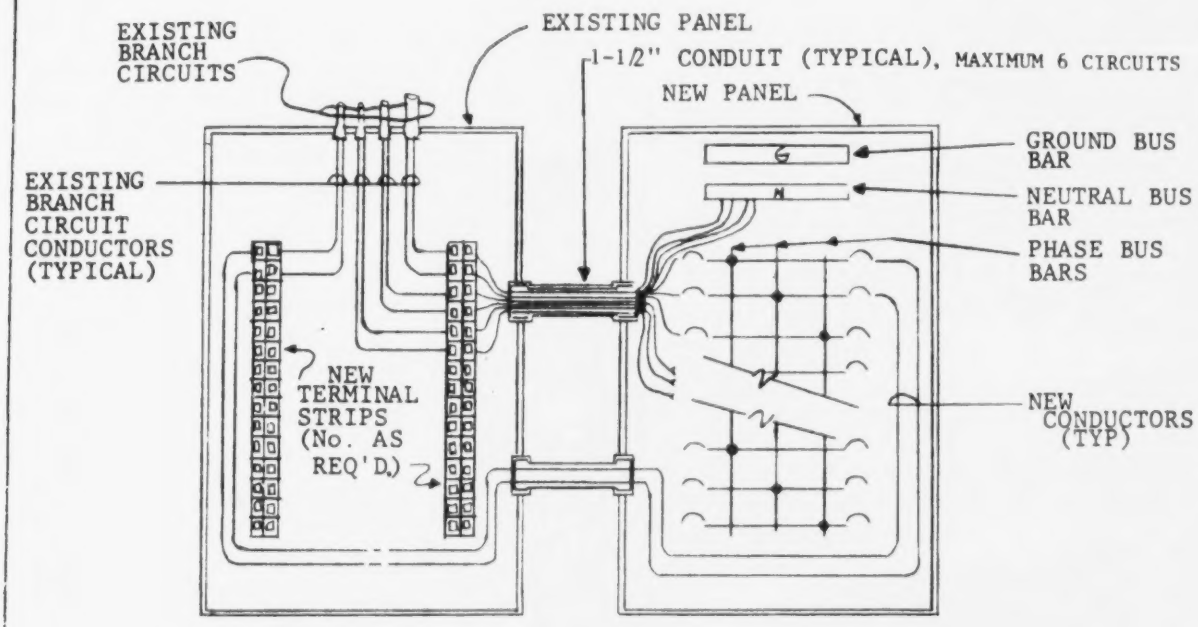
NURSE STATION COUNTER DETAIL

E M-10


6" MIN
5 WIRES
GALVANIZED SHEET STEEL BARRIER SAME GAUGE OF PANELBOARD BOX
FEEDER CONDUIT
EXTRA SIDE GUTTER SPACE MINIMUM 6" WIDE/WITH COVER REMOVED TO SHOW FEEDER TAPS
FEEDER TAPS TO BE EQUAL OR LARGER THAN PANEL MAIN (TYPICAL)
PARALLEL GUTTER TAPS CONNECTORS WITH MOLDED PHENOLIC COVERS SECURELY FASTENED TO MAKE A COMPACT INSTALLATION
MAIN FEEDER
GROUND TAP TO BE EQUAL TO GROUND CONDUCTOR
CABLE SUPPORT PLUG WHERE INDICATED IN LIGHTING AND POWER RISER DIAGRAM
OFF-CENTER DOOR

TYPICAL PANEL DETAIL WITH EXTRA SIDE GUTTER FEEDER TAP

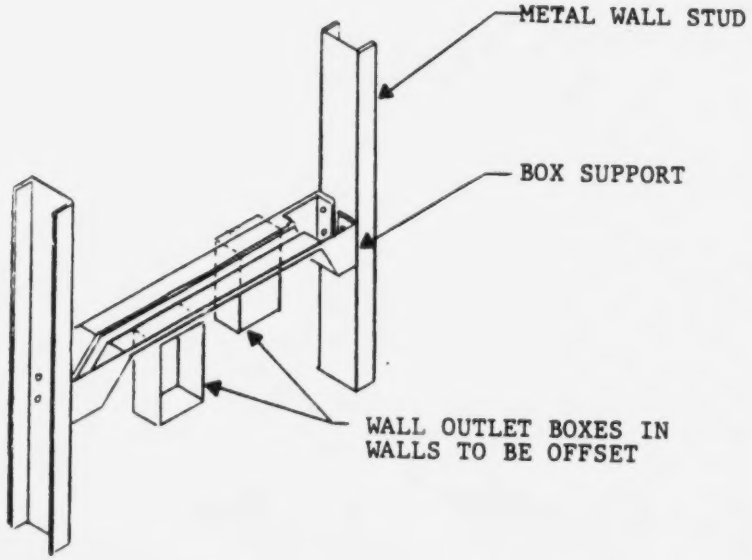
E
MH1



NOTE:
REMOVE INTERIOR OF EXISTING PANEL. INSTALL NEW TERMINAL STRIP(S) AS SHOWN AND EXTEND EXISTING BRANCH CIRCUITS AS REQUIRED TO NEW PANEL.

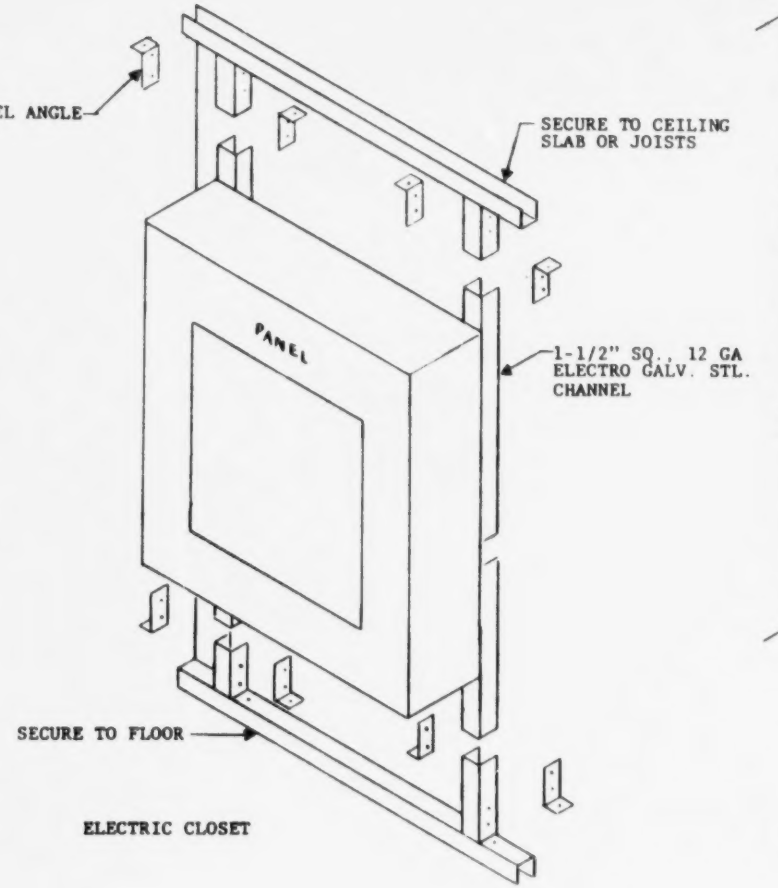
EXTENSION OF EXISTING CIRCUITS TO NEW PANEL

E
M-12

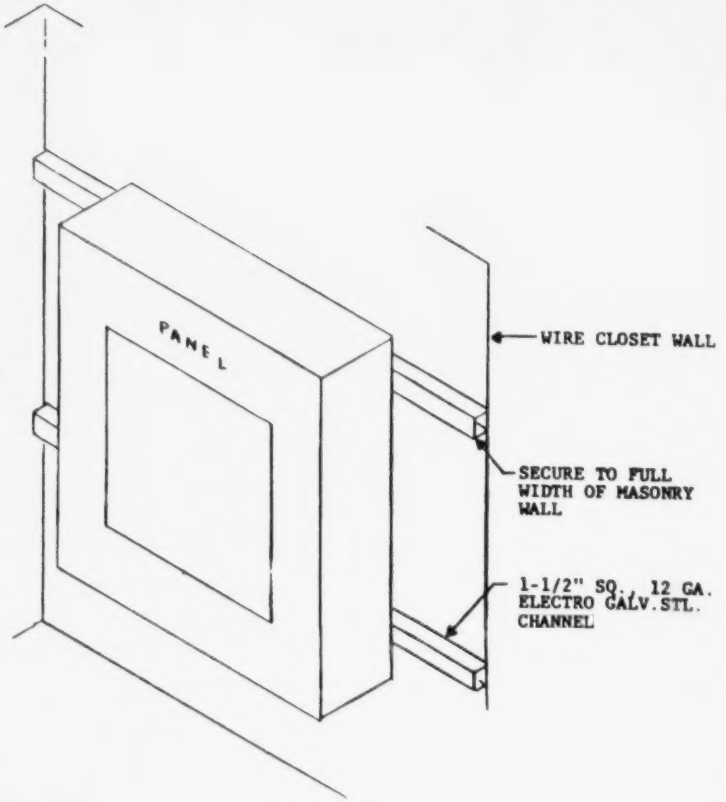


WALL OUTLET BOX DETAIL

E
M-13


8-1/4" STEEL ANGLE CONNECTORS
SECURE TO CEILING SLAB OR JOISTS
PANEL
1-1/2" SQ., 12 GA ELECTRO GALV. STL. CHANNEL
SECURE TO FLOOR
ELECTRIC CLOSET

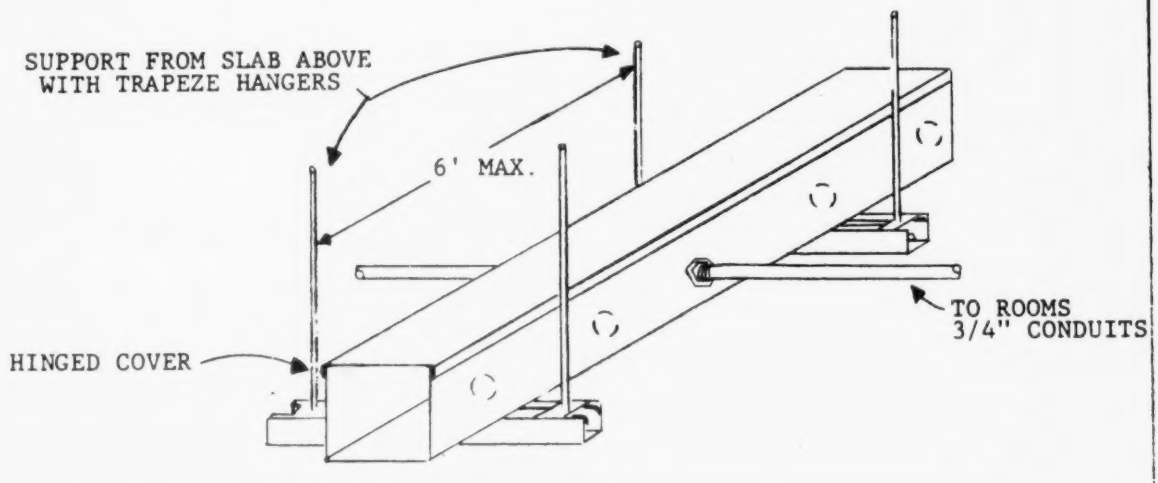
FOR DRYWALL INSTALLATION



FOR MASONRY WALL INSTALLATION

TYPICAL PANELBOARD SURFACE MOUNTING

E
M-14



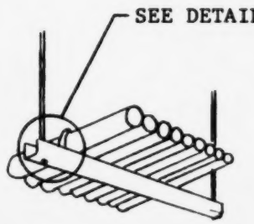
6"x 6" LAYIN FLANGELESS WIREWAY WITH KNOCKOUTS. ELECTRIC CODE GAGE BAKED GRAY ENAMEL OR GALVANIZED STEEL.

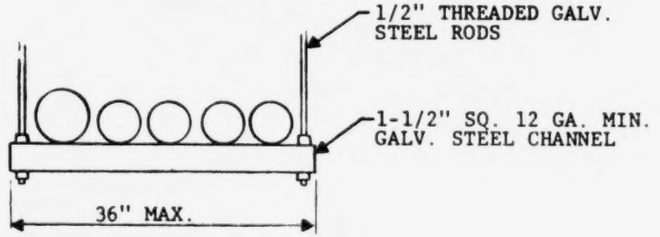
NOTES:

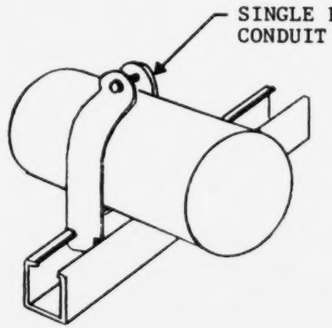
1) LOCATE WIRE WAY APPROXIMATELY 1 FOOT ABOVE CORRIDOR CEILING.
2) ROUTE WIREWAY IN CEILING IN SUCH A MANNER SO AS TO AVOID CONFLICT WITH OTHER ELECTRICAL AND MECHANICAL EQUIPMENT.
3) LOCATE WIREWAY SO THAT THE MAXIMUM POSSIBLE CLEARANCE WILL EXIST BETWEEN THE SIDE OF THE WIREWAY AND OTHER EQUIPMENT AND WALLS.
4) TOP OF WIREWAY SHALL BE ACCESSIBLE.

TELEPHONE WIREWAY DETAIL (TYPICAL)

E
M-15





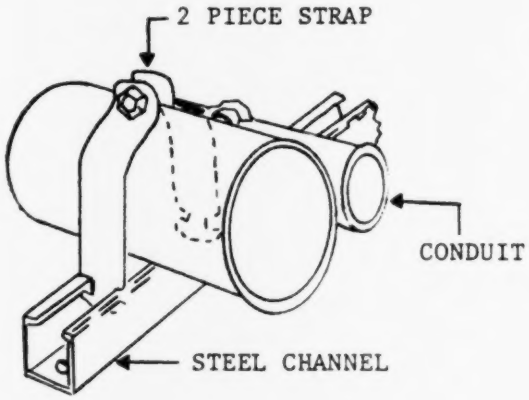


NOTES:

1. CONTRACTOR MAY USE A CONDUIT SUSPENSION SYSTEM EQUIVALENT TO THAT WHICH IS DETAILED, HAVING THE FEATURES SHOWN AND APPROVED IN ADVANCE BY THE RESIDENT ENGINEER.
2. PROVIDE A SAMPLE SUPPORT SYSTEM TO KEEP ON JOB SITE FOR CONSTRUCTION GUIDE PURPOSES.
3. CONDUIT SUSPENSION SYSTEM SHALL BE INDEPENDENT OF ANY OTHER SUSPENSION SYSTEM.

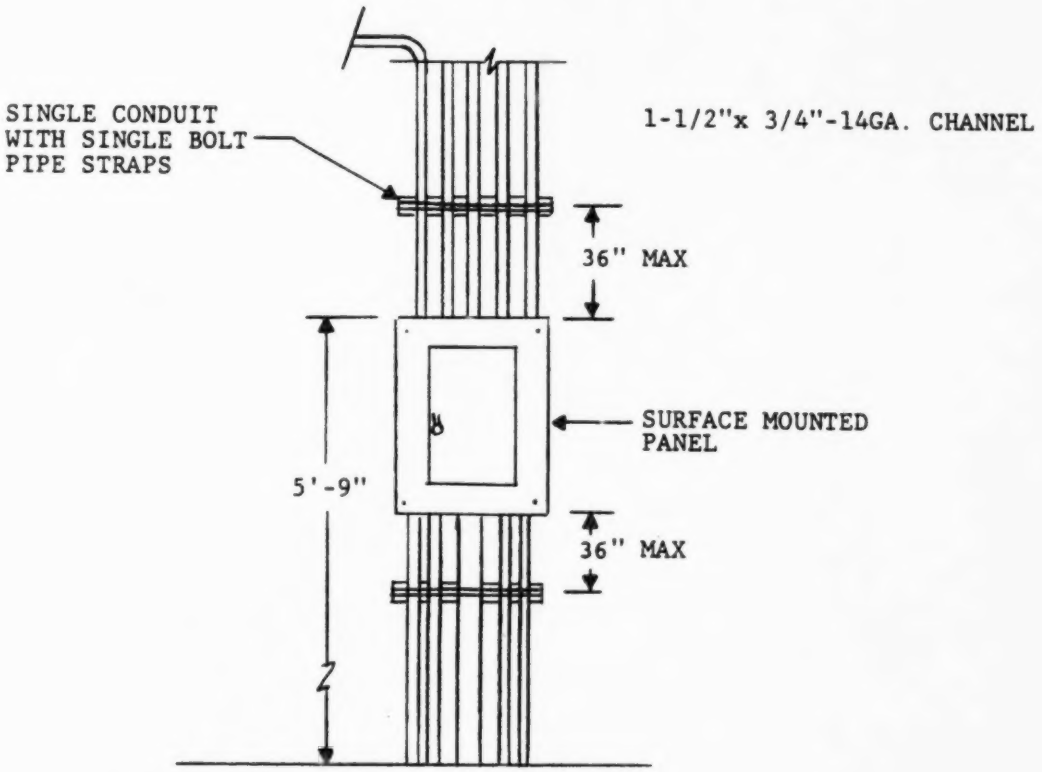
CONDUIT HANGER DETAIL

E
C-1



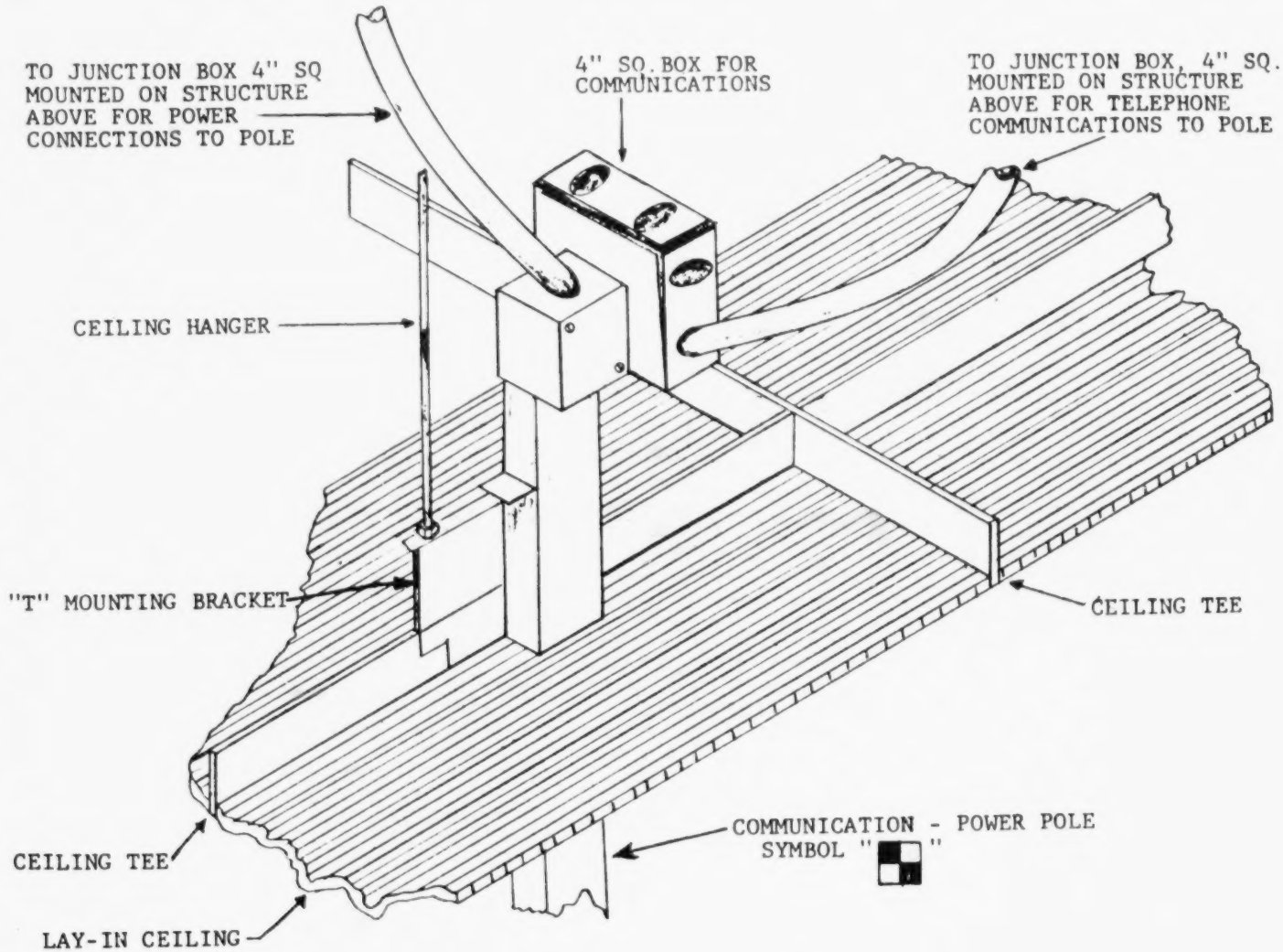
CONDUIT/TRAPEZE MOUNTING DETAIL

E
C-2



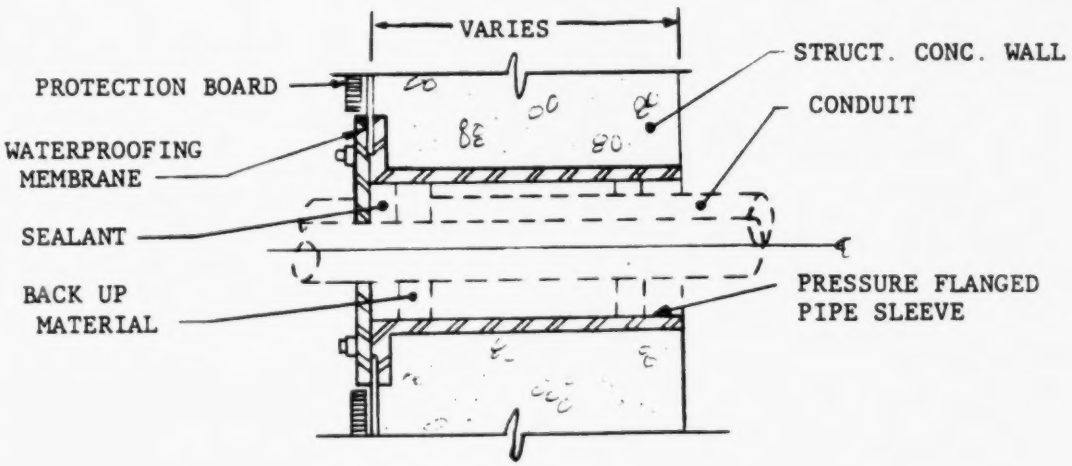
CONDUIT SUPPORT DETAIL FOR SURFACE MOUNTED PANEL
(TYPICAL)

E
C 3


TO JUNCTION BOX 4" SQ MOUNTED ON STRUCTURE ABOVE FOR POWER CONNECTIONS TO POLE
4" SQ. BOX FOR COMMUNICATIONS
TO JUNCTION BOX, 4" SQ. MOUNTED ON STRUCTURE ABOVE FOR TELEPHONE COMMUNICATIONS TO POLE
CEILING HANGER
"T" MOUNTING BRACKET
CEILING TEE
CEILING TEE
COMMUNICATION - POWER POLE SYMBOL " "
LAY-IN CEILING

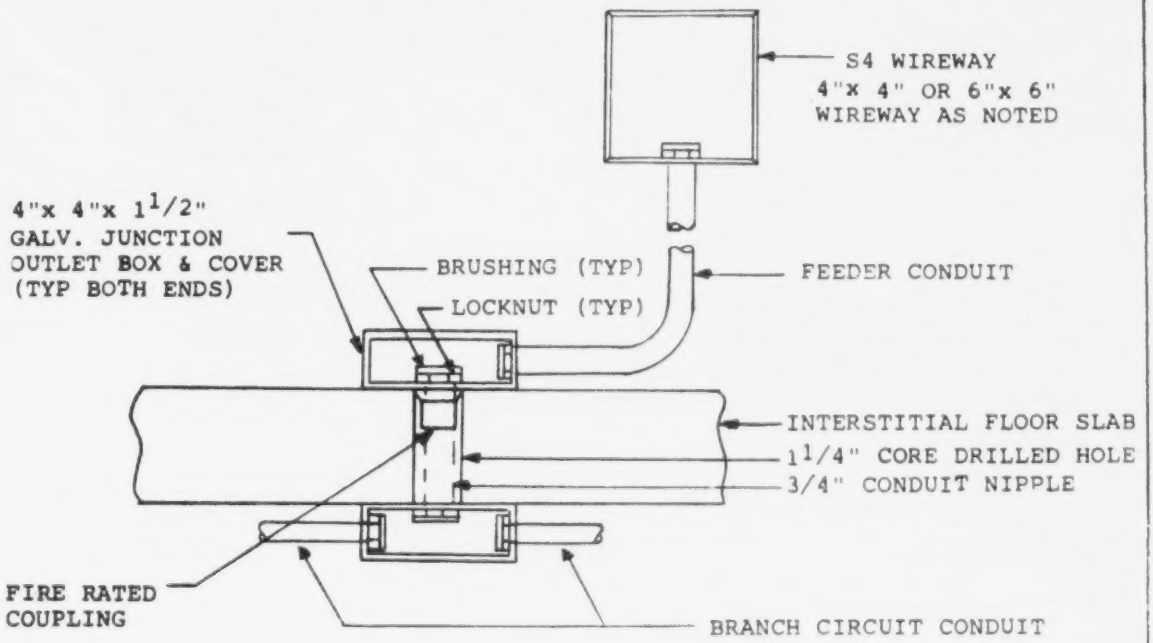
COMMUNICATION POWER POLE DETAIL

E
C-4



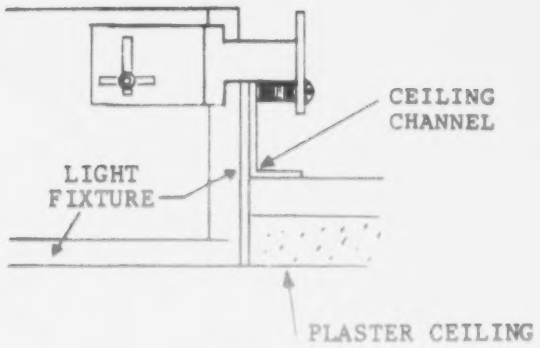
TYPICAL PIPE & CONDUIT SLEEVE THRU
EXTERIOR WALL OR FOUNDATION WALL

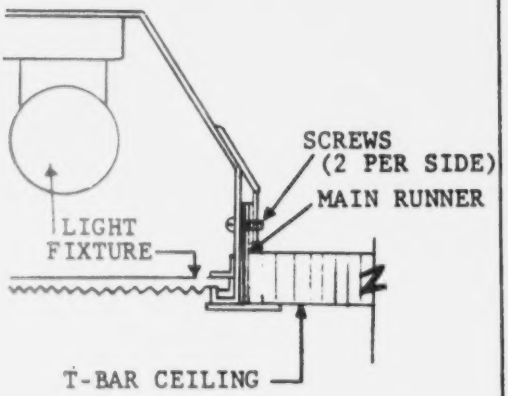
E
C-5



TYPICAL FLOOR SLAB
PENETRATION DETAIL /SCALE 3"= 1-0'

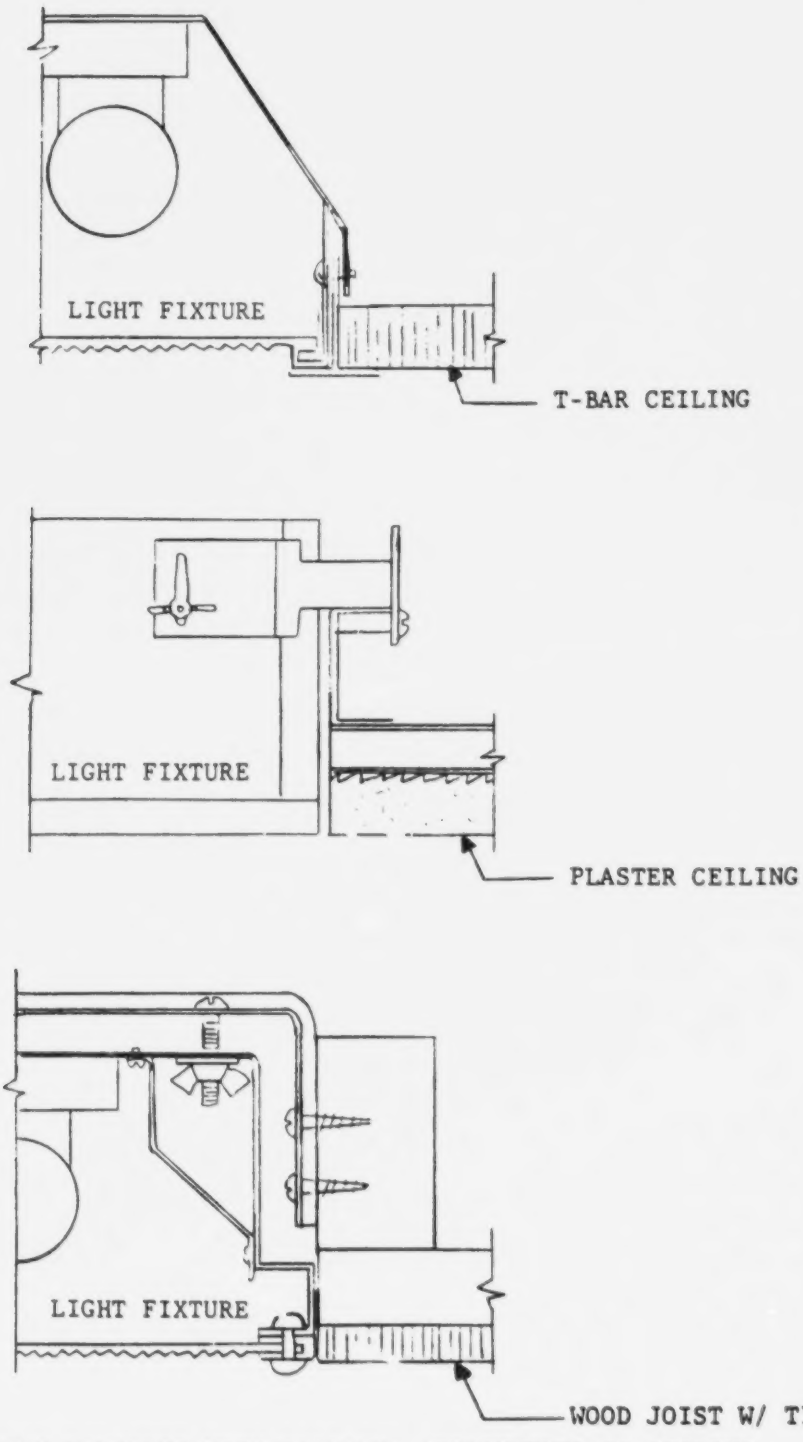
E
C-6





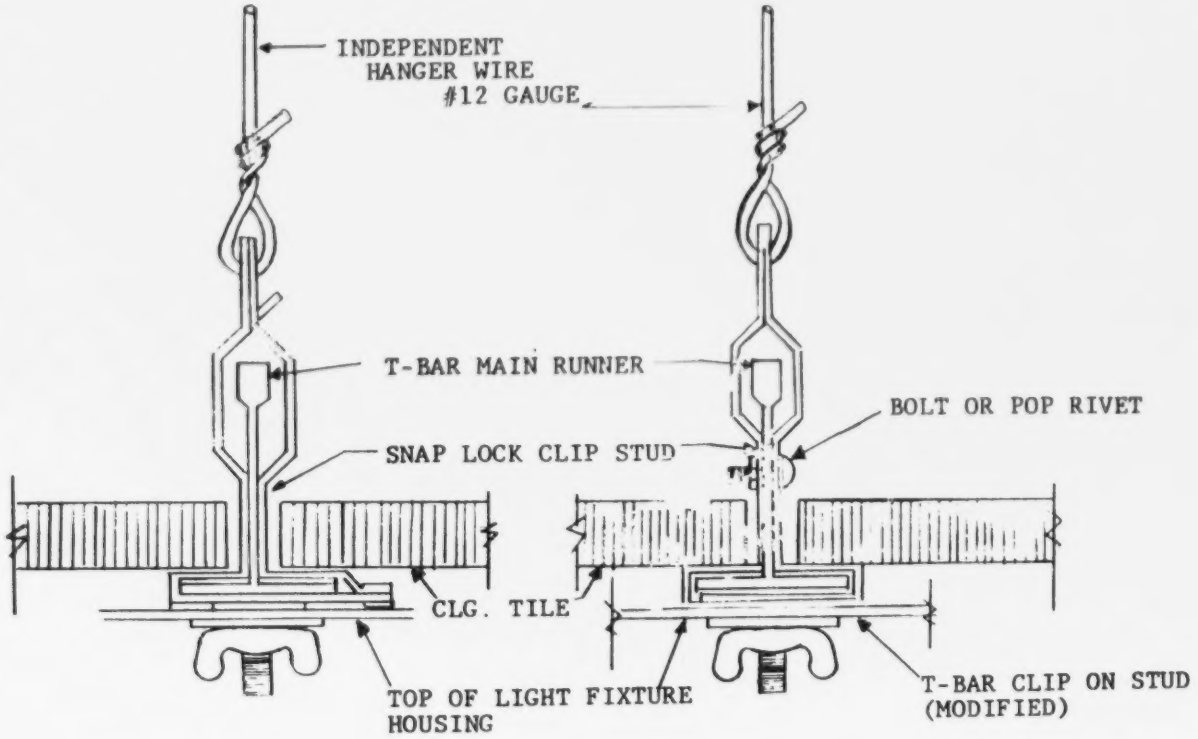
RECESSED FIXTURE INSTALLATION DETAILS

E
SS-1



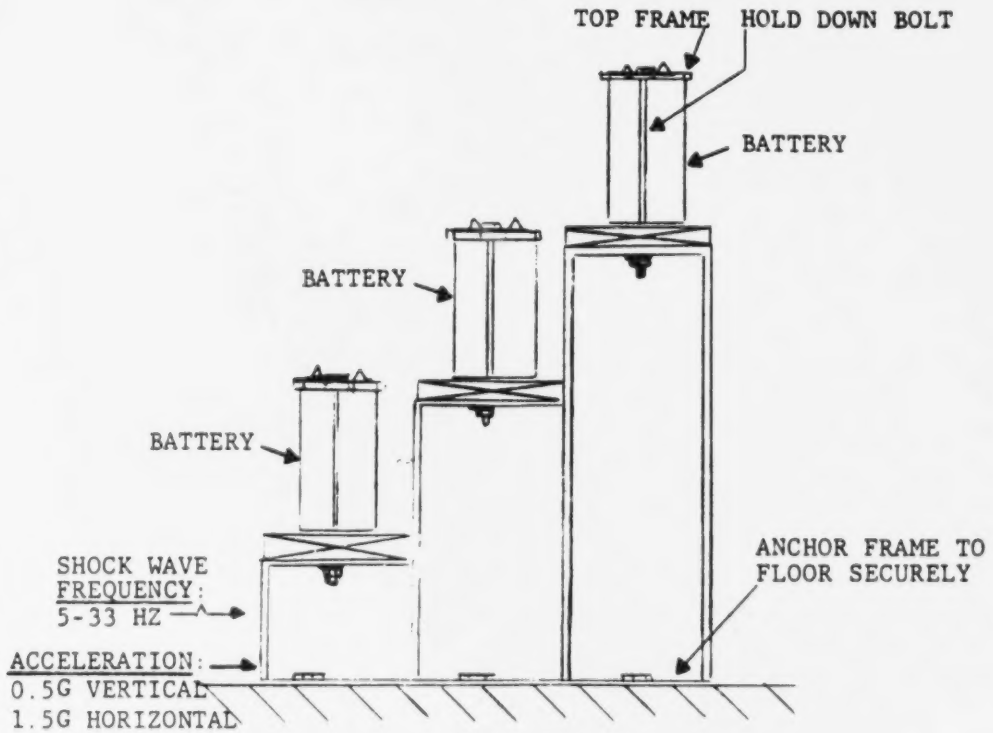
RECESSED LIGHTING FIXTURES WITH POSITIVE ATTACHMENTS TO CEILING
- FOR SEISMIC AREAS

E
SS-2

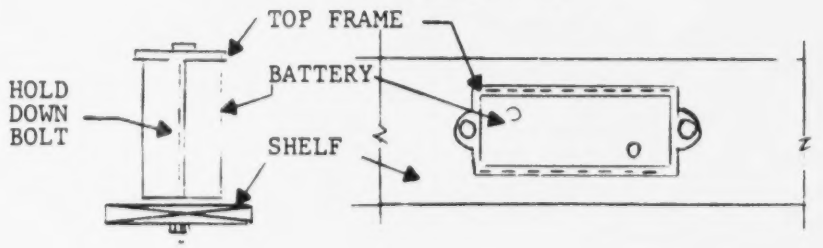


SURFACE MOUNTED FIXTURE INSTALLATION DETAILS

E
SS-3



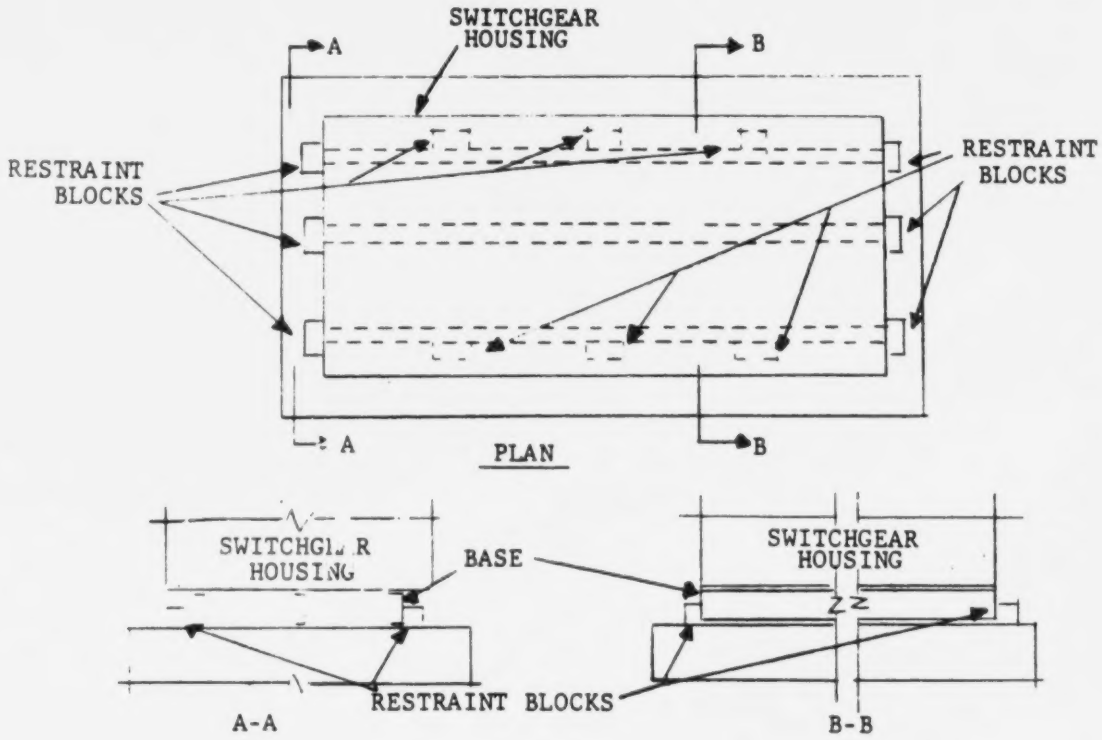
END VIEW



TOP FRAME IS STEELANGLE PAINTED. SIZE AND DETAIL TO BE DETERMINED BY CELL DIMENSIONS. HOLD DOWN BOLT TO BE 3/8" DIA. WITH LENGTH AS REQUIRED BY HEIGHT OF CELL. EACH CELL SHALL BE ANCHORED AS SHOWN.

BATTERY RACK MODIFICATIONS AND TYPICAL CELL ANCHOR DETAILS:
SEISMIC SHOCK AREAS.

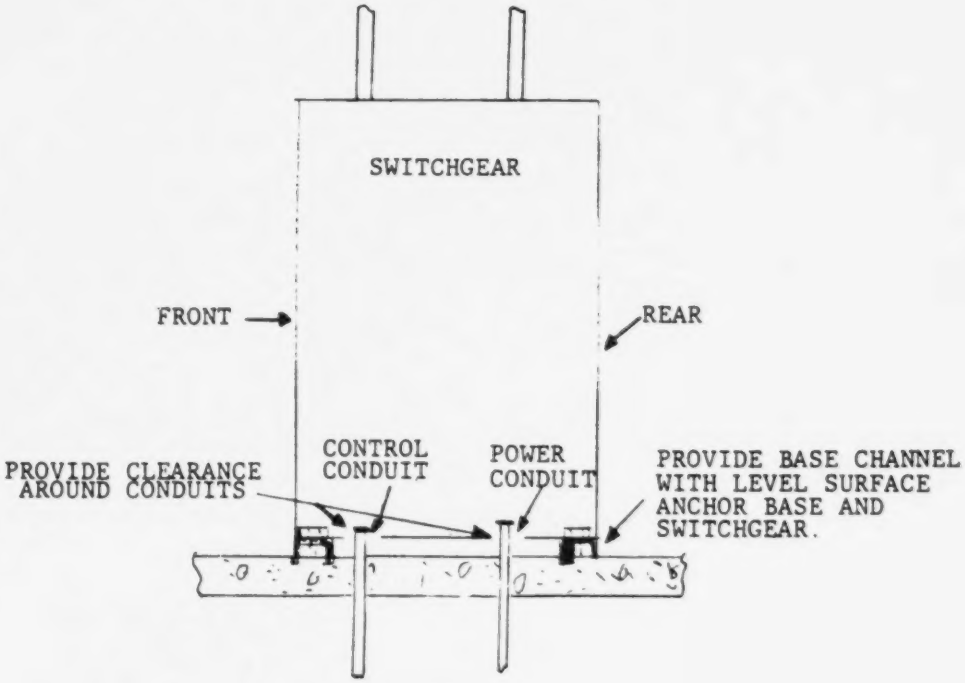
E
SS-4



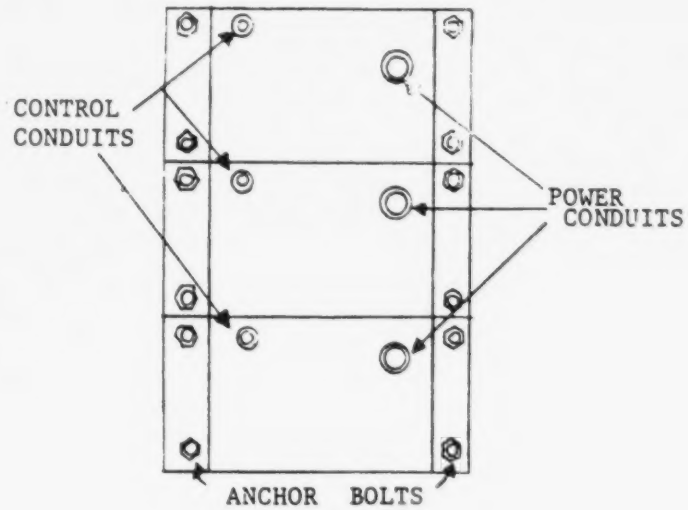
PROVIDE RESTRAINT BLOCKS AROUND BASE SUPPORTS
TO PREVENT MOVEMENT OF EQUIPMENT DURING SHOCK.

OUTDOOR SWITCHGEAR INSTALLATION IN SEISMIC SHOCK AREAS

E
SS-5



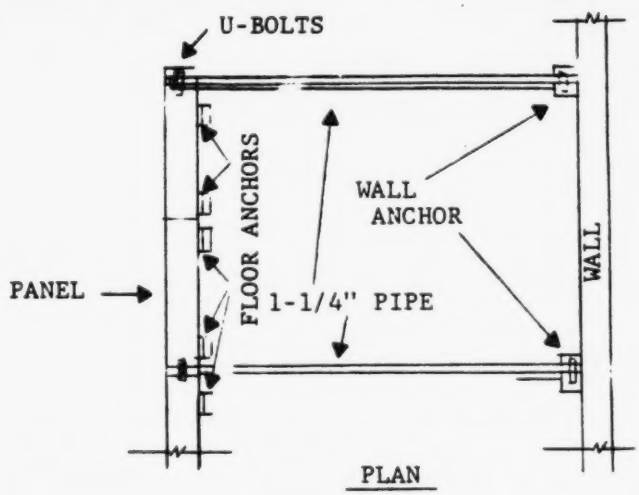
SECTION



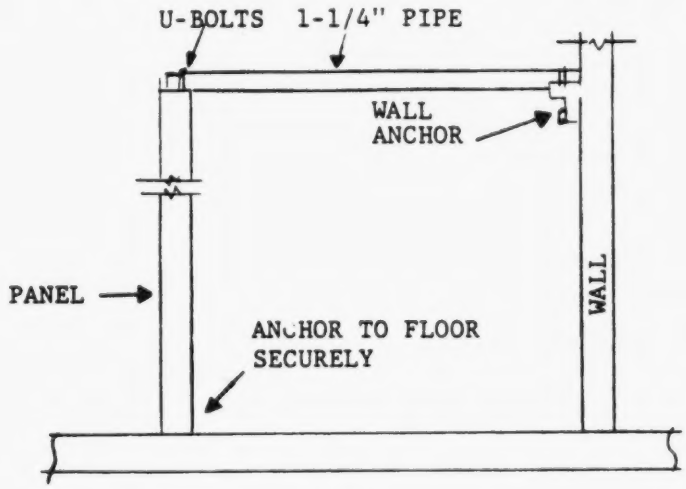
PLAN

INDOOR SWITCHGEAR INSTALLATION FOR SEISMIC AREAS

E
SS-6



PLAN

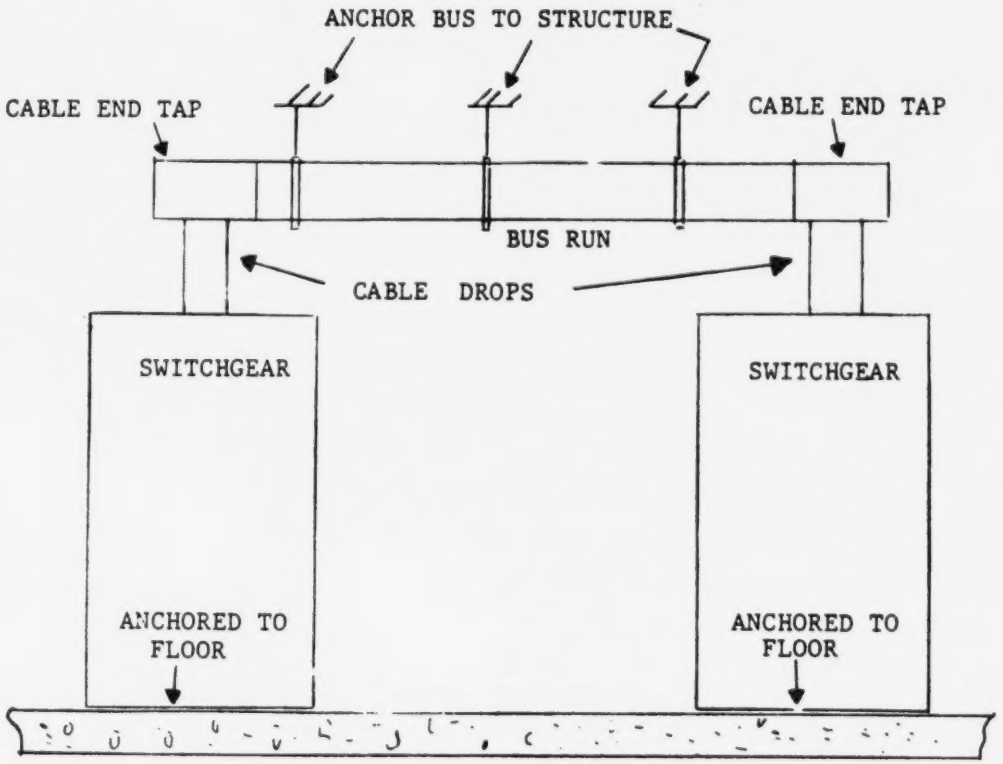


ELEVATION

PANEL SHOWN SOLIDLY ANCHORED. IF VIBRATION ISOLATORS ARE REQUIRED, THEY SHAL BE RESTRAINT TYPE WHICH PREVENT FREE MOTION IN ANY DIRECTION.

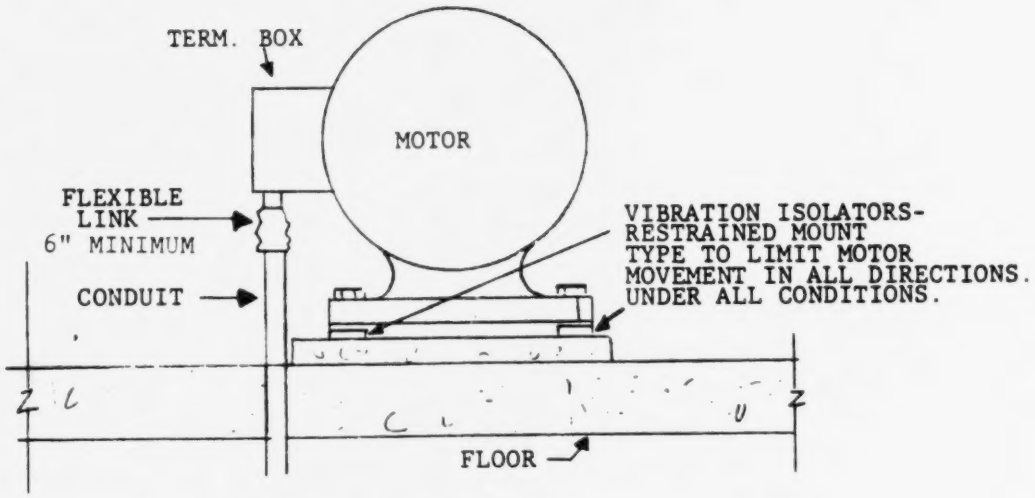
SWITCHBOARD INSTALLATION FOR SEISMIC SHOCK RESISTANCE

E
SS-7

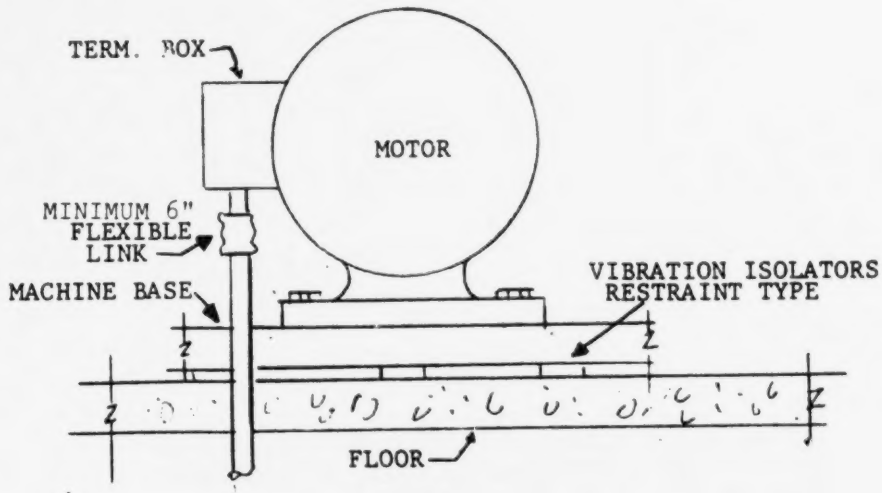


BUS RUN SUPPORT FOR SEISMIC SHOCK RESISTANCE

E
SS-8

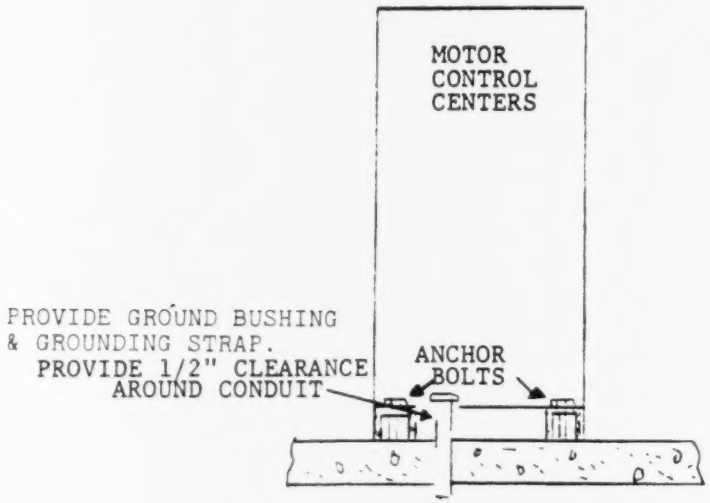


MOTOR VIBRATION ISOLATION MOUNTS SHALL WITHSTAND SEISMIC SHOCK OF FREQUENCY: 5-33 HZ ACCELERATION: 1.0G VERTICAL / 1.0G HORIZONTAL.



MOTOR ON MACHINE BASE FOR SEISMIC AREAS

E
SS-9



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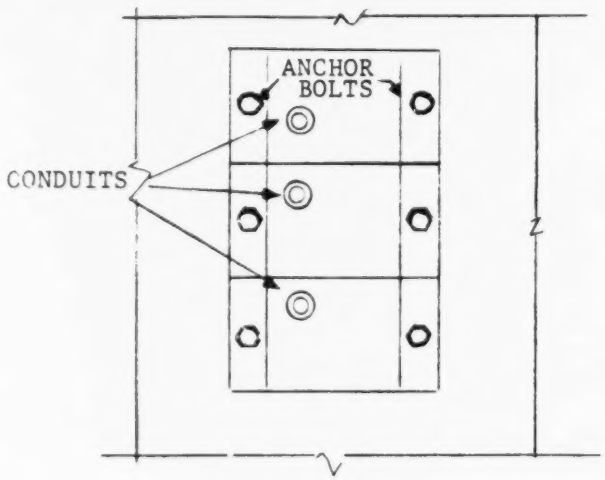
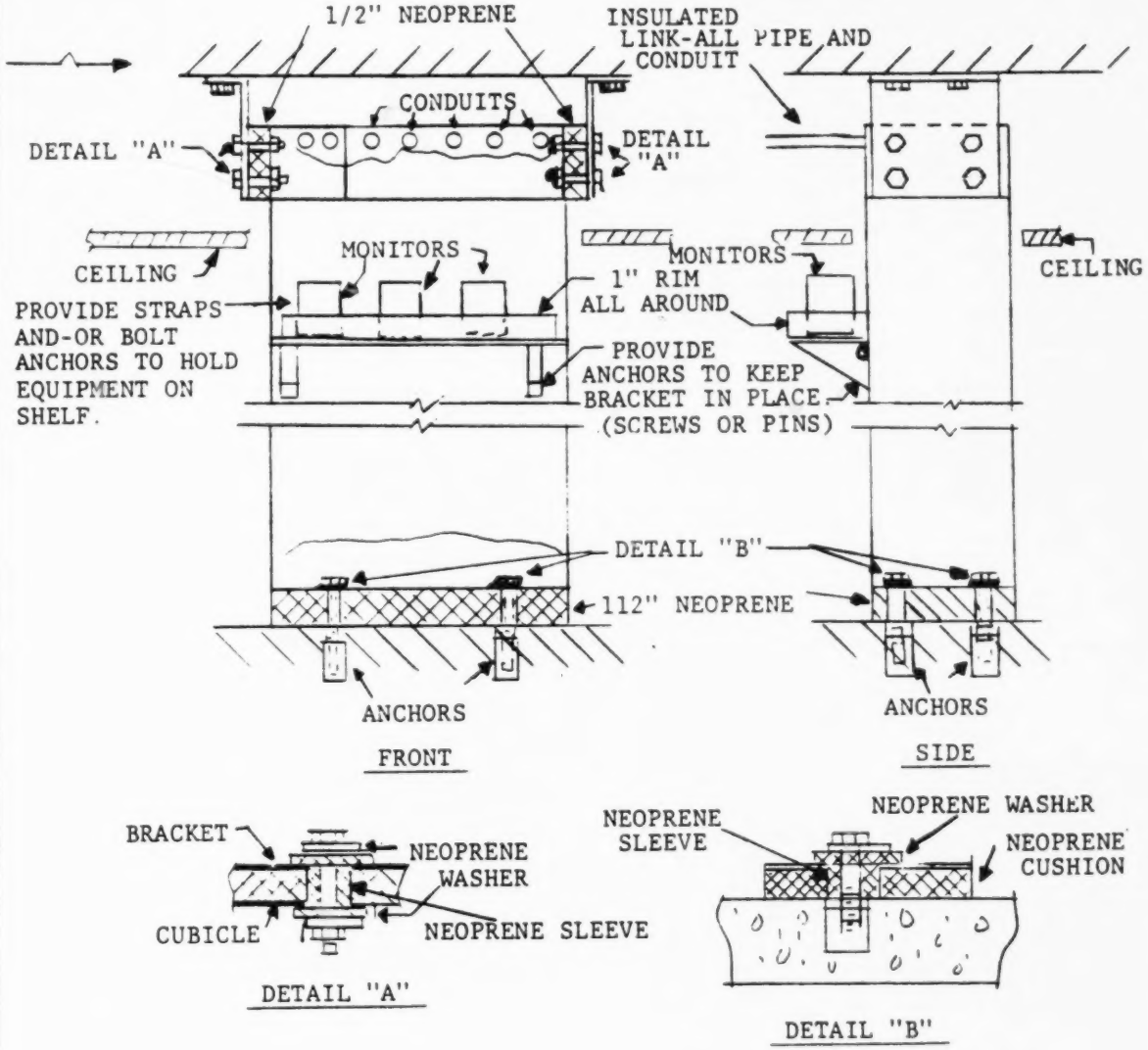


PLAN

ANCHOR BOLTS SHALL HAVE STRENGTH REQUIRED TO RESIST OVERTURNING AND SHIFTING OF EQUIPMENT WITH FACTOR OF SAFETY OF TWO.

MOTOR CONTROL CENTERS IN SEISMIC SHOCK AREAS

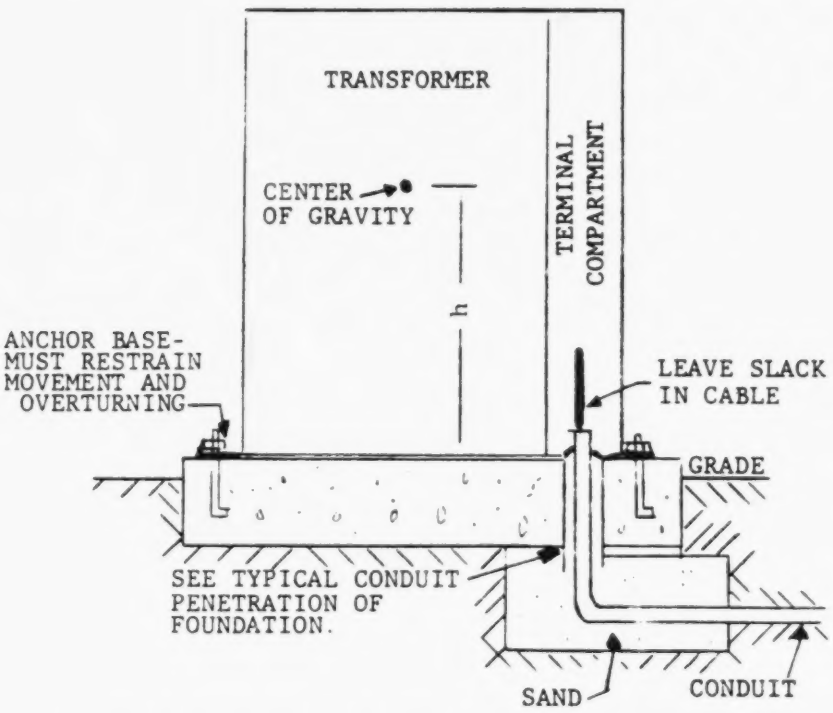
E
SS-10



CONSOLE SHALL BE CAPABLE OF WITHSTANDING SHOCK WITHOUT DISTURBANCE OR DAMAGE.

PREFABRICATED BEDSIDE PATIENT UNIT.(TYPES 3 SERIES ONLY.)

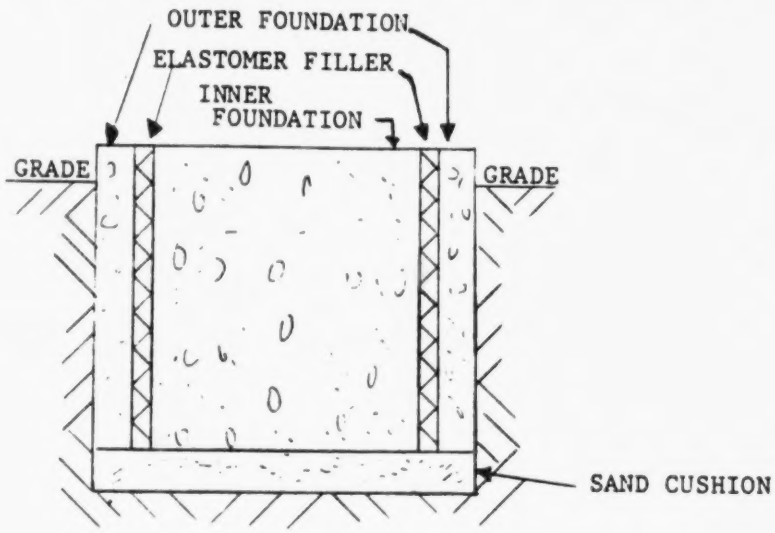
E
SS-11



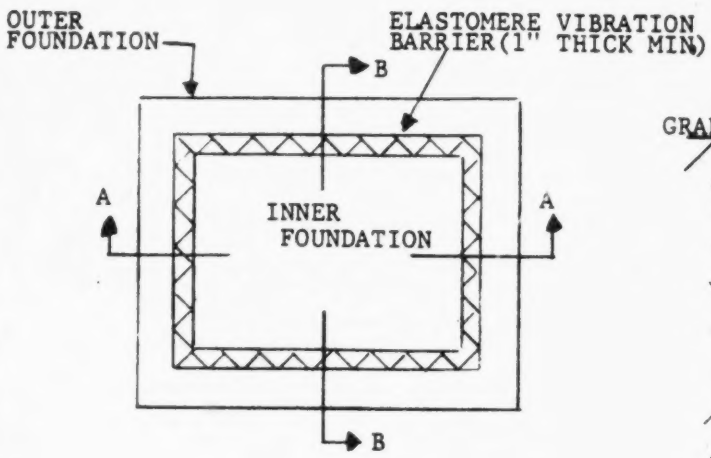
PROVIDE ANCHORS THAT WILL HOLD TRANSFORMER IN PLACE DURING SHOCK AND PREVENT OVERTURNING. ASSUME ENTIRE MASS AT CENTER OF GRAVITY AND LEVER AMPLIFICATION OF HEIGHT(h) OF C.G. ALL EQUIPMENT IN TRANSFORMER AND TERMINAL COMPARTMENT SHALL WITHSTAND SPECIFIED SHOCK WITHOUT SERVICE INTERRUPTION OR PHYSICAL DAMAGE.

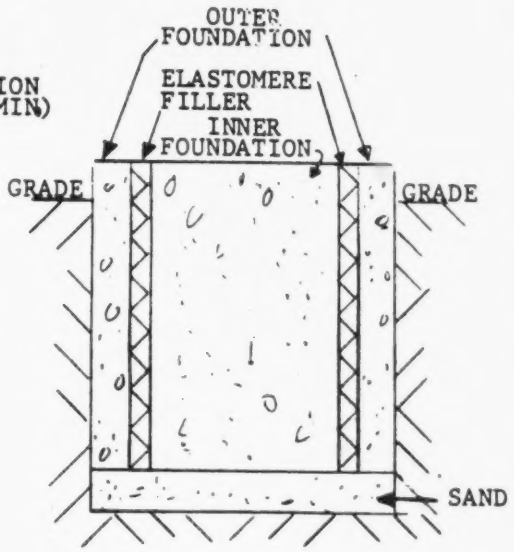
PADMOUNT TRANSFORMER IN SEISMIC SHOCK AREA

E
SS-12



A-A



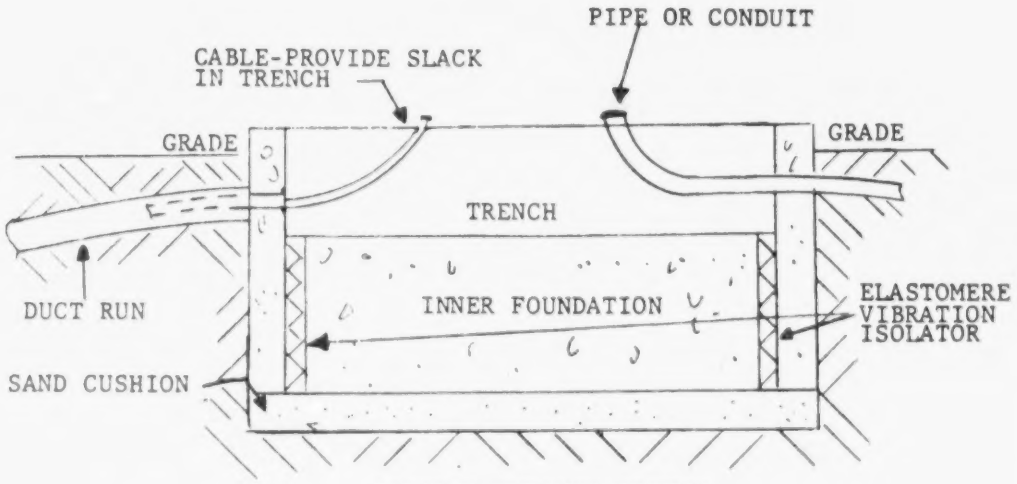


B-B

WIDTH AND LENGTH TO BE AS REQUIRED FOR EQUIPMENT.
DEPTH SHALL BE SUFFICIENT TO PROVIDE SEISMIC MASS
WHICH DOES NOT RESPOND TO SHOCK WAVE.

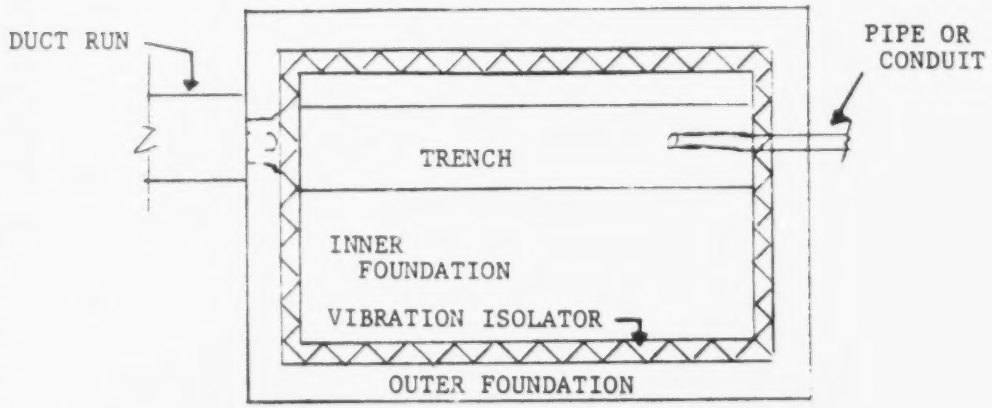
TYPICAL SEISMIC FOUNDATION

E
SS-13



SECTION THROUGH TRENCH

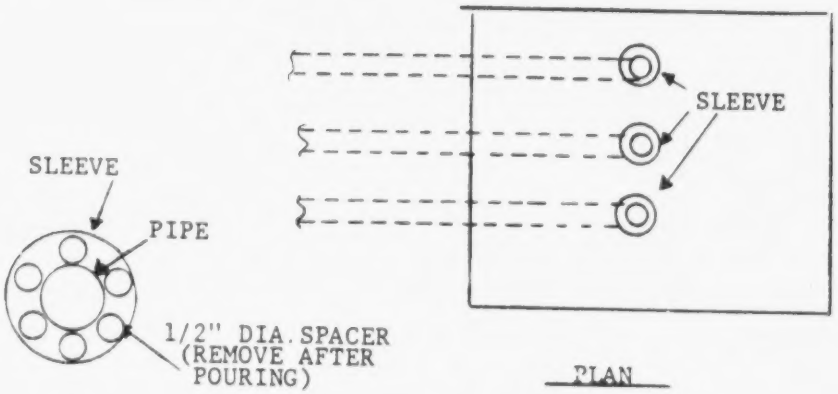
DUCT RUN ARRANGEMENT AND SIZE TO BE DETERMINED FOR PARTICULAR APPLICATION. TRENCH DIMENSIONS AND LOCATIC. SHALL BE DETERMINED TO FIT EQUIPMENT REQUIREMENTS OF THE PARTICULAR INSTALLATION.



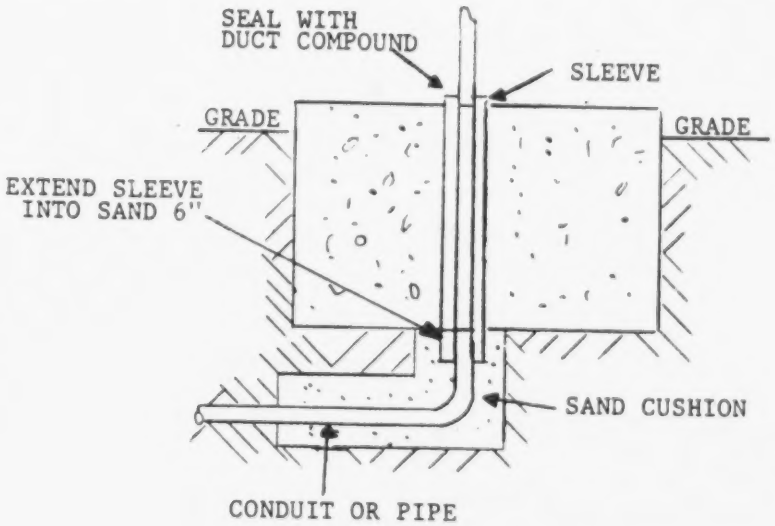
FOUNDATION DESIGN TO BE AS REQUIRED TO FIT EQUIPMENT WEIGHT AND DIMENSIONS. DESIGN TO BE BASED ON TYPICAL SEISMIC FOUNDATION DESIGN PARAMETERS.

TYPICAL DUCT RUN AND PIPE CONNECTION TO EQUIPMENT ON SEISMIC FOUNDATION

E
SS-14



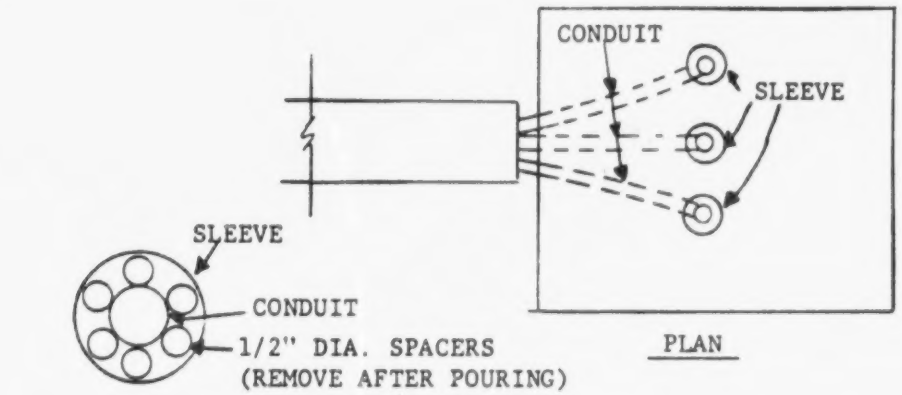
PLAN



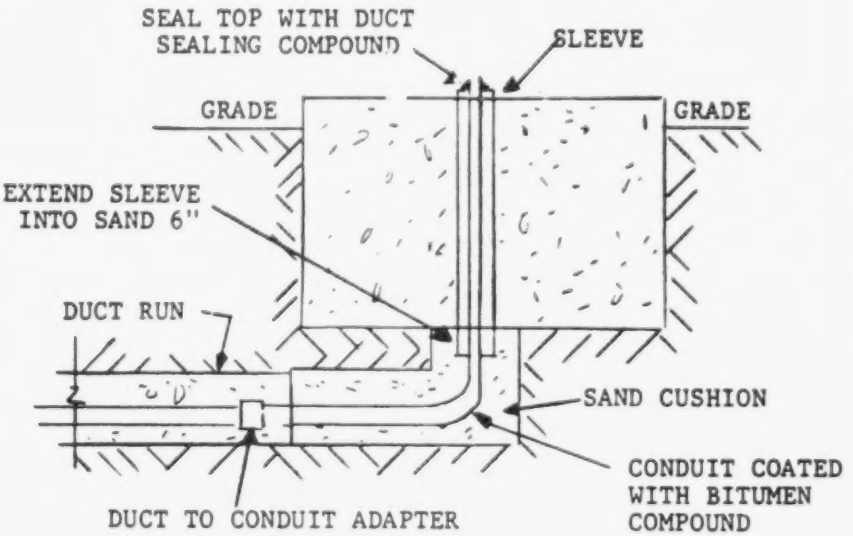
SECTION

PIPE CONNECTION TO FOUNDATION-SEISMIC SHOCK RESISTANT

E
SS-15



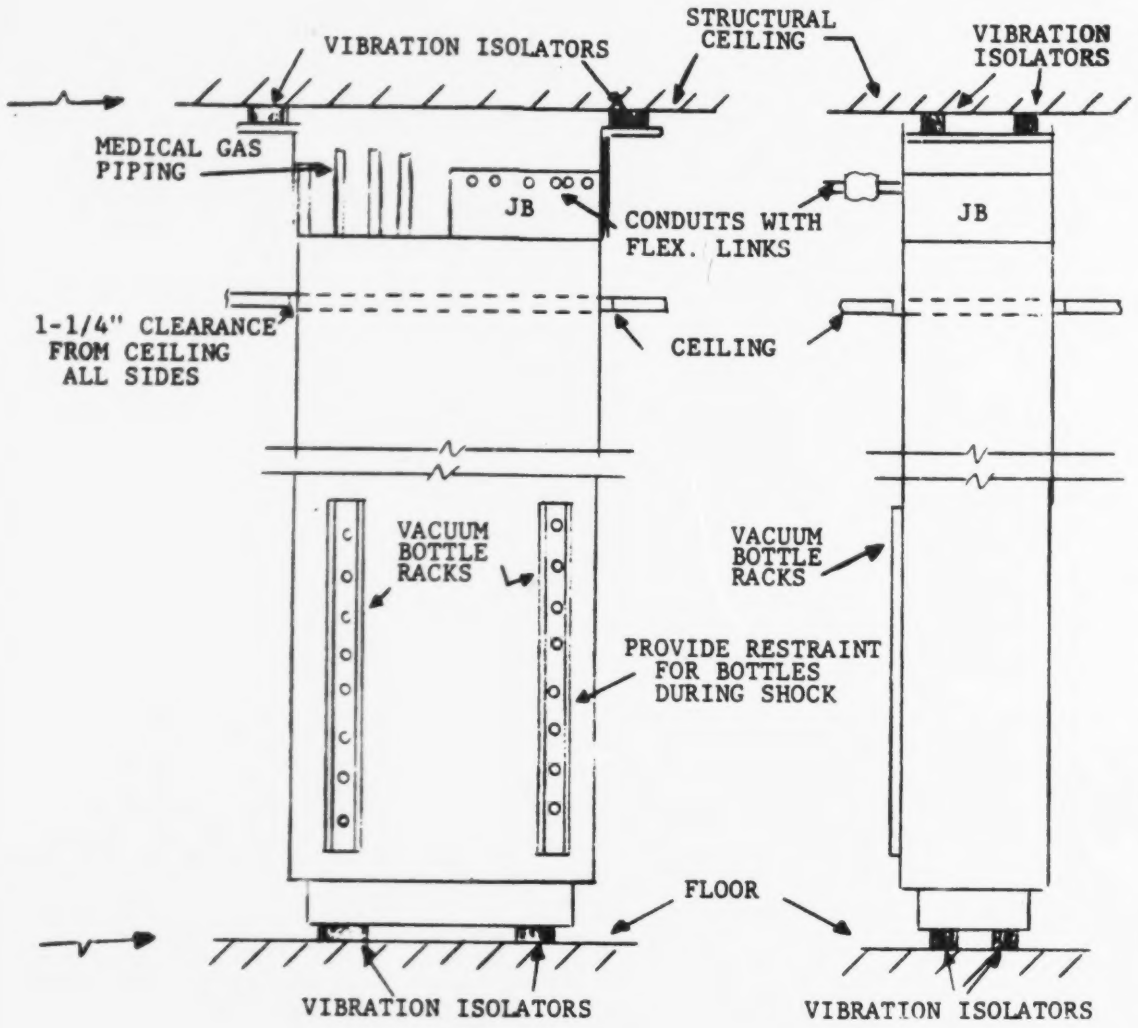
INSTALLATION DETAIL



SECTION

DUCT RUN CONNECTION TO FOUNDATION-
SEISMIC SHOCK RESISTANT

E
SS-16



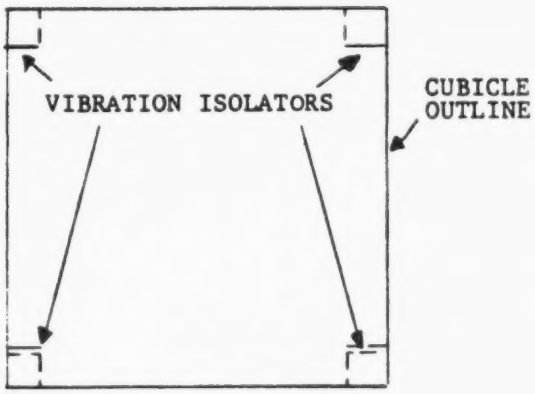
FRONT VIEW

SIDE VIEW

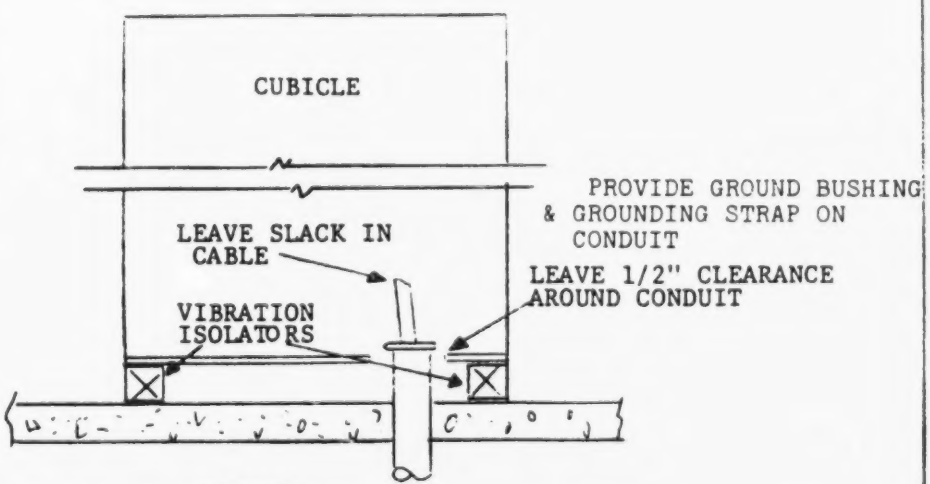
UNIT SHALL BE CAPABLE OF WITHSTANDING SHOCK WITHOUT INTERRUPTION OR DAMAGE. VIBRATION ISOLATORS SHALL BE "RESTRAINT" TYPE TO PREVENT SHIFTING OF EQUIPMENT.

TYPICAL BEDSIDE UNIT.(ALL PBPU'S EXCEPT SERIES 3)

E
SS-17



PLAN

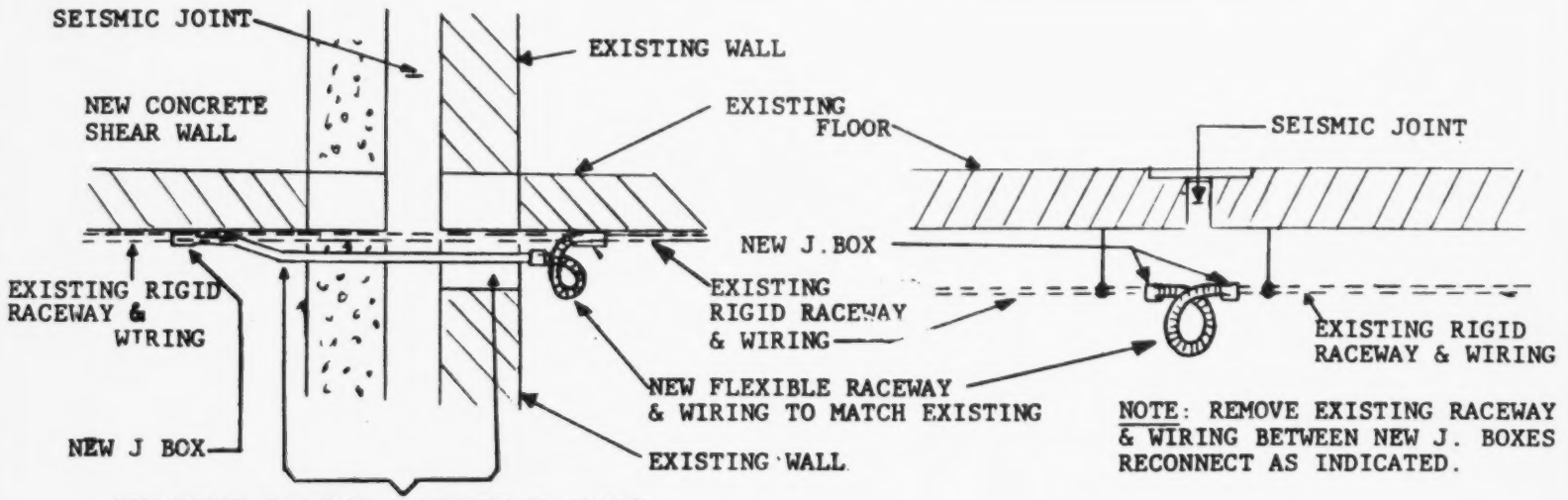

CUBICLE
PROVIDE GROUND BUSHING & GROUNDING STRAP ON CONDUIT
LEAVE SLACK IN CABLE
LEAVE 1/2" CLEARANCE AROUND CONDUIT
VIBRATION ISOLATORS

SECTION

VIBRATION ISOLATORS SHALL BE RESTRAINT TYPE WITH PROVISION TO LIMIT FREE MOVEMENT.

CUBICLE INSTALLATION FOR SEISMIC SHOCK RESISTANCE

E
SS-18

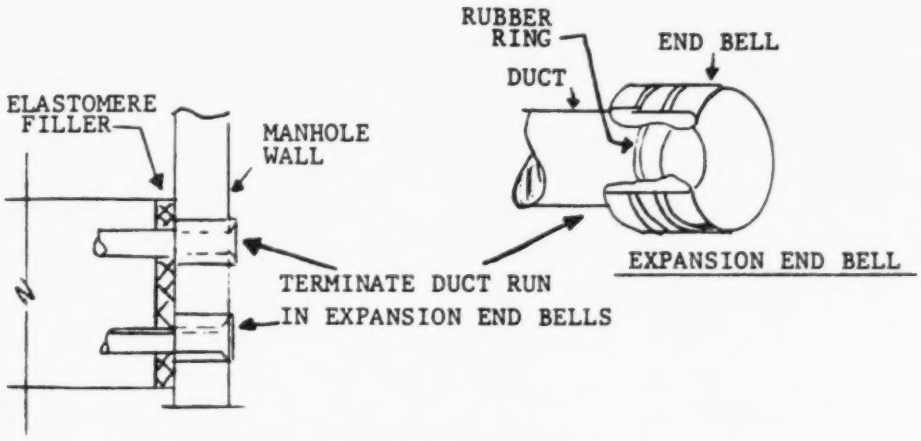


NEW RIGID RACEWAY & WIRING TO MATCH EXISTING WALL OPENING SIZED FOR MAXIMUM DIFFERENTIAL MOVEMENT BETWEEN STRUCTURAL UNITS.

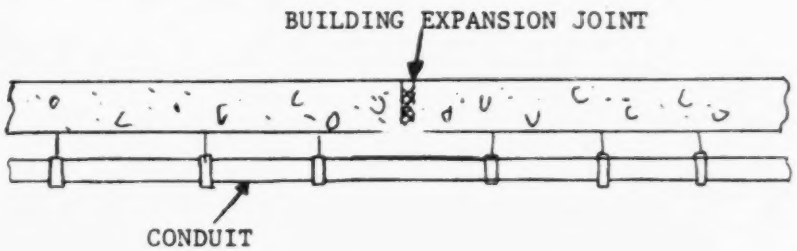
NOTE: REMOVE EXISTING RACEWAY & WIRING BETWEEN NEW J. BOXES RECONNECT AS INDICATED.

E
SS-19

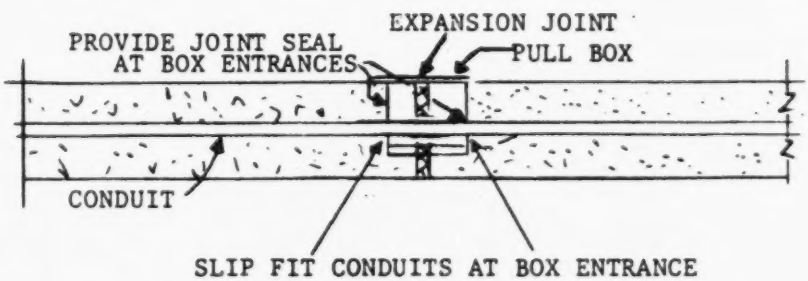
CONDUIT CROSSING SEISMIC JOINT DETAILS



DUCT RUN WITH EXPANSION JOINT



HORIZONTAL CONDUIT RUN ACROSS EXPANSION JOINT



CONCEALED CONDUIT CROSSING EXPANSION JOINT

E
SS-20

TRANSFORMER SCHEDULE				
TRANSFORMER DESIGNATION	RATING KVA & PHASE	MOUNTING	SERVES	CHARACTERISTICS

TRANSFORMER SCHEDULE

E
G-1

PANEL ___

LOCATION _____ MTG _____ MAIN _____ BUS _____ VOLTS _____ PHASE _____

_____ WIRE CONNECTION _____ FEEDER CONDUIT _____ CONDUCTORS ENTERING CABINET AT _____

L.C.L.	LTS.	REC.	DESCRIPTION	WATTAGE ØA	WATTAGE ØB	WATTAGE ØC	BREAKER AMP	BREAKER POLE	CKT. NO.	CKT. NO.	BREAKER AMP	BREAKER POLE	WATTAGE ØA	WATTAGE ØB	WATTAGE ØC	L.C.L.	LTS.	REC.	DESCRIPTION
									1	2									
									3	4									
									5	6									
									7	8									
									9	10									
									11	12									
									13	14									
									15	16									
									17	18									
									19	20									
									21	22									
									23	24									
									25	26									
									27	28									
									29	30									
									31	32									
									33	34									
									35	36									
									37	38									
									39	40									
									41	42									
			TOTALS																TOTALS

WATTAGE:
BUS A _____ BUS B _____ BUS C _____

SUB TOTALS _____ _____ _____

TOTAL A _____
B _____
C _____

LINE AMPS TOTAL _____

LINE AMPS LARGEST PHASE _____

_____ KVA +( )(25%)= KVA

PANEL SCHEDULES

E
G-2

DISTRIBUTION PANELBOARD SCHEDULES							
DESIGNATION	CKT NO.	CIRCUIT BREAKER			SYMMETRICAL IC RATING	WIRING & CONDUIT	EQUIPMENT SERVED
		POLE	TRIP	FRAME			

DISTRIBUTION PANELBOARD SCHEDULES

DATE _ _ _ _

BY _ _ _

PROJECT/JOB NO._ _ _ _ _ _ _ _ _ _ _ _ _ _ MAINS _ _ _ _ A

MOTOR CONTROL CENTER NO._ MCC _ _ _ _ _ V

ITEM NO.	HP/ KW.	F.L.A.	STR. SIZE	P'S	C/B	TRIP	AUX. EQUIP.	REM. CONT. DEVICES	POWER CONTROL DIAGRAM	NAMEPLATE DESIGNATION	REMARKS

MOTOR CONTROL CENTER SCHEDULE

E
G-4

SWITCHBOARD SCHEDULE / VOLT, 3Ø, 4W, + GROUND

ITEM	CIRCUIT BREAKER			SYMMETRICAL AMP RATING	EQUIPMENT SERVED	REMARKS
	POLE	FRAME	TRIP			

SWITCHBOARD SCHEDULE

E
G-5

RECOMMENDED UNIT _____

VOLTAGE _____ PHASE _____

KW _____ KVA _____ PF _____

DERATINGS: Altitude _____

Fuel _____ Temperature _____

RATING FOR APPLICATION - KW _____ KVA _____

MAXIMUM VOLTAGE DIP _____

MOTOR INFORMATION FROM MOTOR NAMEPLATE				REDUCED VOLTAGE MOTOR STARTING		MOTOR STARTING LOAD			MOTOR RUNNING LOAD		ACCUMULATED LOAD PLUS LOAD OF INCOMING STARTING MOTOR		ACCUMULATED LOAD		NOTES: NAME OF LOAD VOLTAGE DIP, ETC.
1	2	3	4	5		6	PF	7	8	9	10	11	12	13	
HP	Code	Ø	Volts	Tap	Mult.	KVAs		KWs	KVA	KS	Max. KVA	Max. KW	Cont. KVA	Cont. KW	
											All 6 to 12	All 7 to 13	All 8 to 12	All 9 to 13	
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															

GENERATOR SIZE CALCULATION SHEET

E
G-6

★U.S. Government Printing Office: 1986—491-873/47598